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MINNESOTA MEDICINE

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine, and Minneapolis Surgical Society

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Minnesota Medicine

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

Volume 34 **January, 1951** **No. 1**

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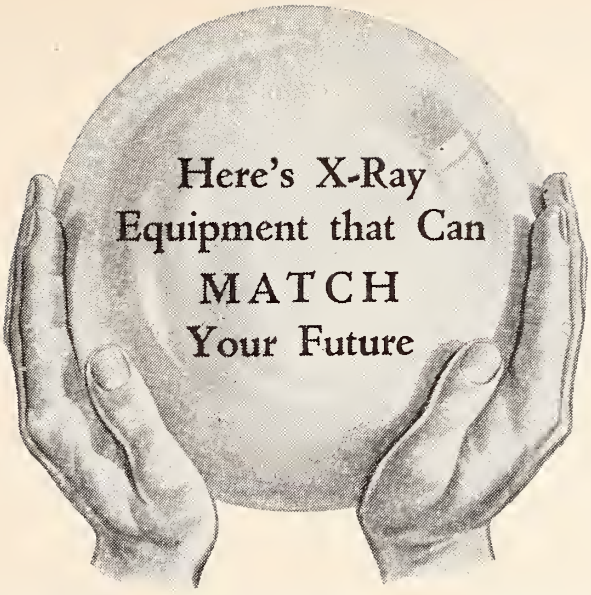

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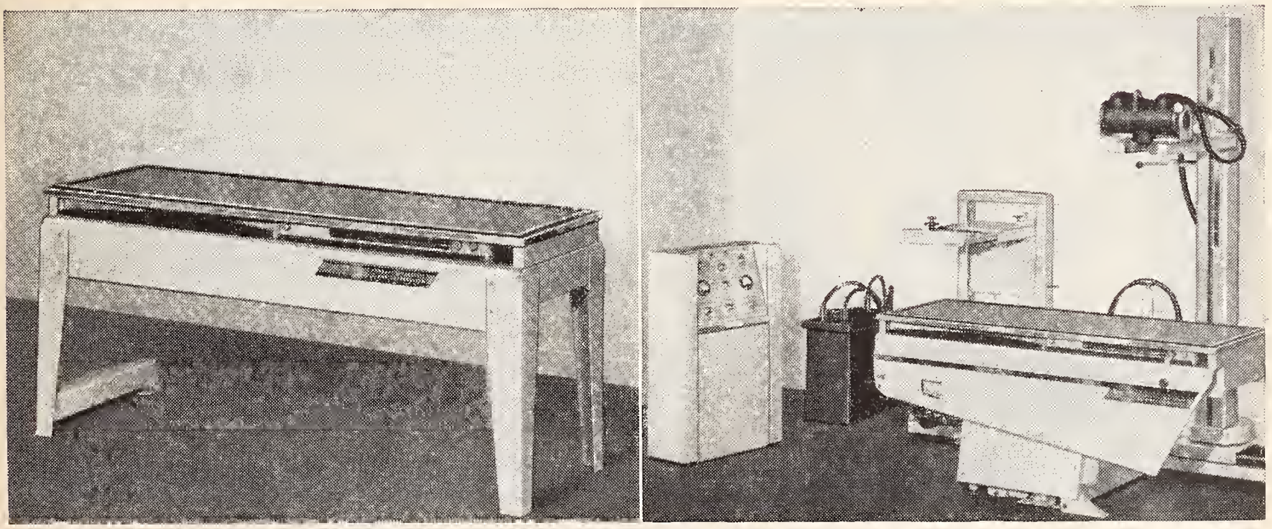

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Most, H., and Van Assendelft, F.: Ann. New York Acad. Sc. 53:427 (Sept. 15) 1950.

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Dowling, H. F.; Lepper, M. H.; Caldwell, E. R., and Spies, H. W.: Ann. New York Acad. Sc. *63*:433 (Sept. 15) 1950.

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B_{12} is among the most potent of known microbiologically active substances.[3] Animal studies indicate that it increases the ability of the normal mammal to utilize protein.[4] With a high protein diet, 0.01 mcg. of vitamin B_{12} per day was found to increase significantly the growth rate of B_{12} deficient rats. In another study, growth response of B_{12} depleted rats was proportional to the B_{12} in the ration within the critical range of 0.025 to 0.1 mcg. per rat day.[5]

About 1 mcg. of vitamin B_{12} daily, administered intramuscularly, constitutes an effective dose in pernicious anemia. In a recent clinical study of young children manifesting vitamin B_{12} deficiency as evidenced by malnutrition and growth failure, oral administration of 10 mcg. of vitamin B_{12} daily for eight weeks induced marked responses in growth; notable increases in vigor, alertness and better general behavior; and improved appetite.[6]

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---

(1) Schweigert B. S.: Significance of Vitamin B_{12} and Related Factors, J. Am. Dietetic Assoc. *26*:782 (Oct.) 1950.

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1. Burke, B. S. and Stuart, H. C.: J.A.M.A., 137:119, 1948. 2. Burke, B. S. et al.: Am. J. Obst. & Gynec., 46:38, 1943. 3. Burke, B. S. et al.: J. Nutrition, 26:569, 1943. 4. Javert, C. T. and Finn, W. F.: Texas State J. Med., 46:745, 1950. 5. McLester, J. S.: Nutrition and Diet in Health and Disease, Saunders, Phila., 4th ed., 1944. 6. National Research Council: "Recommended Food and Nutrition Board, Daily Allowances for Specific Nutrients," Wash., D. C., 1948. 7. People's League of Health: J. Lancet, 2:10, 1942.

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1. Nesbit, R. M., and Glickman, S. I.: J. Michigan State M. Soc. *46*:664, 1947.
2. Dodson, A. I.: West Virginia M.J. *45*:1, 1949.
3. Seneca, H.; Henderson, E., and Harvey, M.: J. Urol. *61*:1105, 1949.

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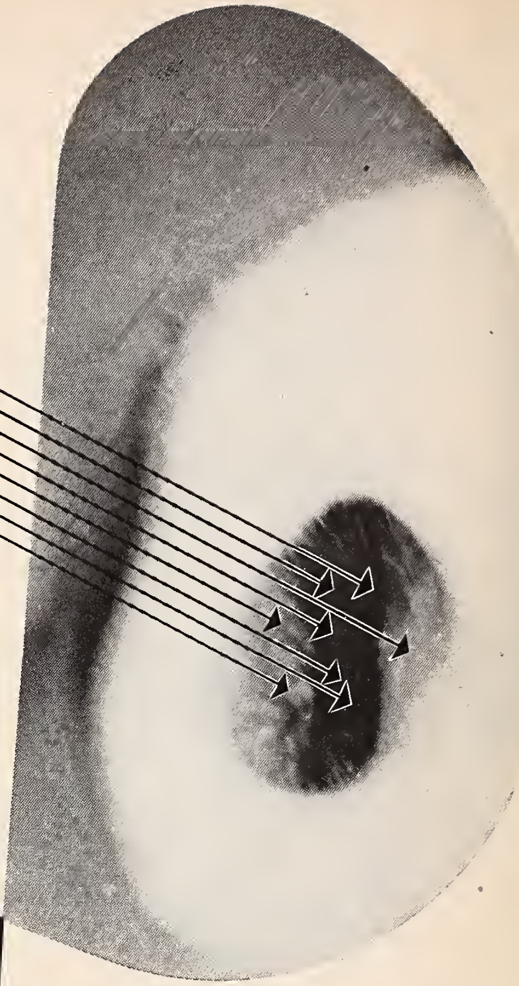

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**Pitt, C.K.: The Art and Science of Artificial Infant Feeding, J.M. Asso. Ala. 19:101 (Oct.) 1949.*

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Harding, F. E.: West. J. Surg. Obst.
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Neustaedter, T.: Am. J. Obst. &
Gynec. 46:530 (Oct.) 1943.

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Glass, S. J., and Rosenblum, G.:
J. Clin. Endocrinol. 3:95 (Feb.) 1943

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Perloff, W. H.: Am. J. Obst. &
Gynec. 58:684 (Oct.) 1949.

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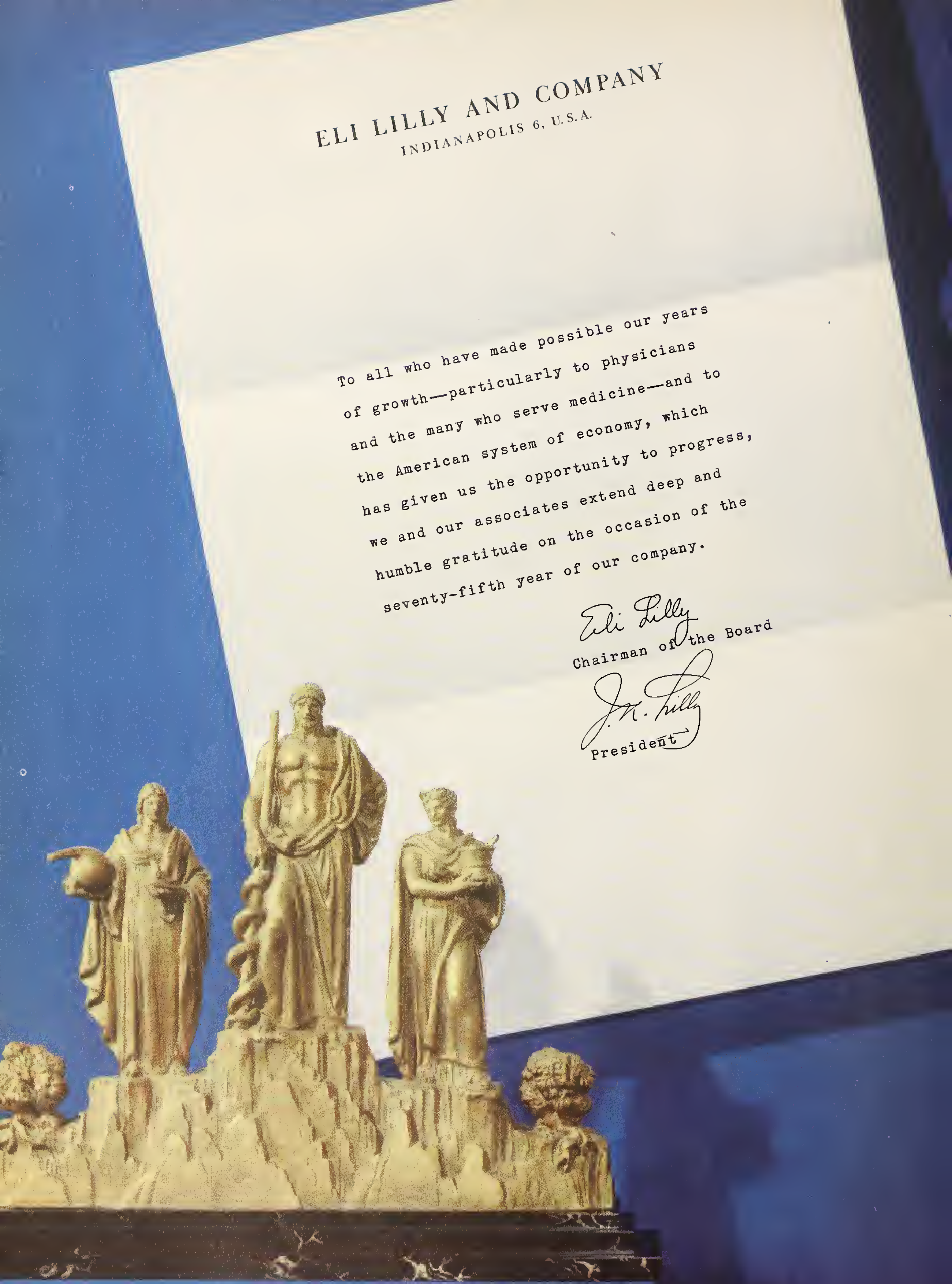ELI LILLY AND COMPANY
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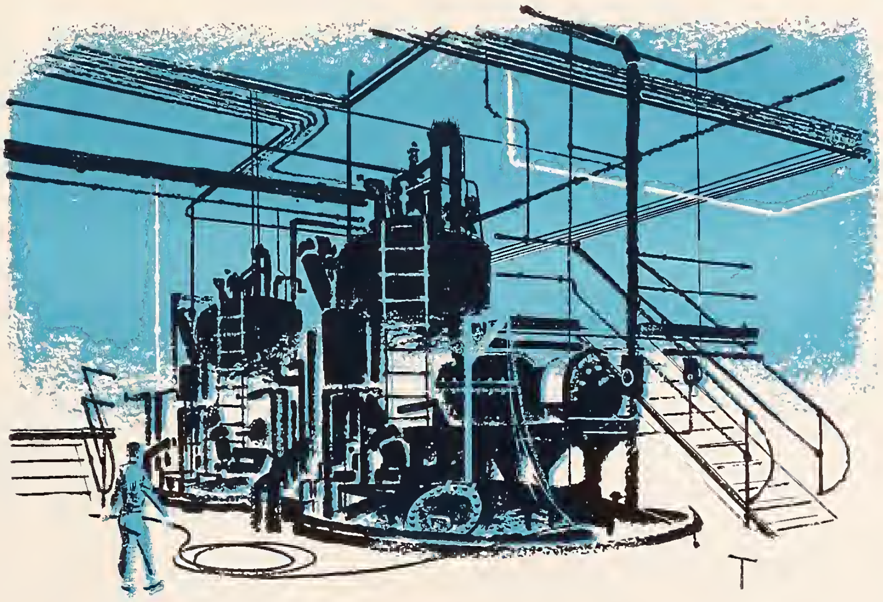

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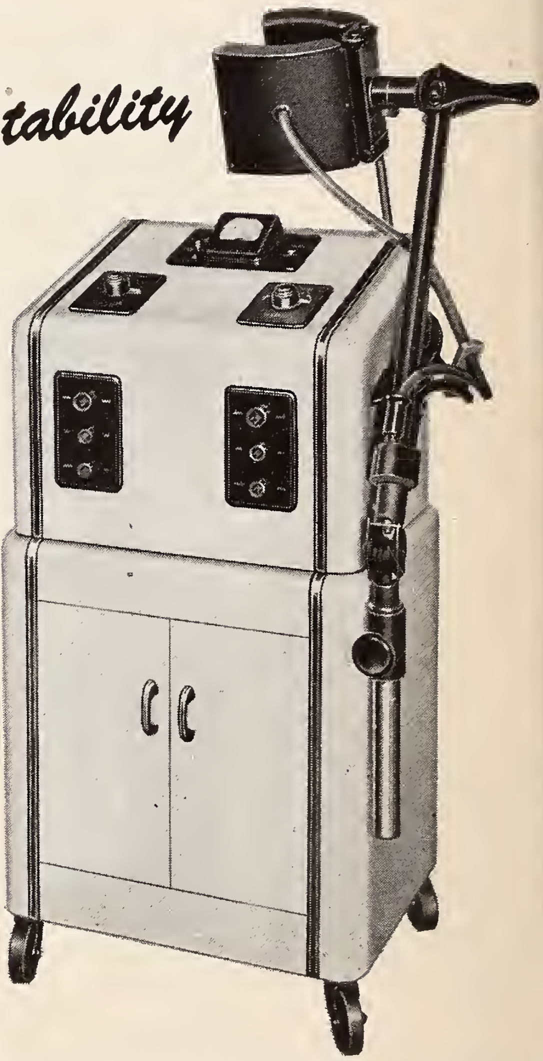

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Minnesota Medicine

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NEW SOLUTIONS

JOHN S. LUNDY, M.D.
Rochester, Minnesota

THE MATERIALS which I wish to discuss comprise a category for which I do not know the name. They might be called "oncotic fluids" or "replacement fluids," but they should not be called "plasma or blood substitutes," and they never should be allowed to fall into the same category as solutions of crystalloid material such as salt and dextrose. These new materials are in sharp contrast to blood and plasma and to solutions of dextrose and salt. Crystalloid solutions, as well as blood and plasma, circulate not only lengthwise in the vessels but also laterally through the walls of the capillaries into and out of the tissues. In contrast these new solutions tend to remain in the circulation and to travel the length of the vessels with probably little lateral motion or passage through the walls. I have found them to be particularly valuable in treatment of shock, especially surgical shock.

The new solutions are dextran, gelatin, periston, acacia, pectin and isinglass, of which I will discuss only the first three.[2]

Dextran was first reported in 1944 by Grönwall and Ingelman[1] of Sweden. I have used the Swedish brand of dextran (macrodex) clinically for more than 1,500 patients since April, 1946. Dextran has been marketed in England under the name of "intradex."[3]

The molecular weight of dextran is rather large, varying from 5,000 to 350,000. Under the electron microscope the molecules appear as branched chains or even resemble the twig of a tree without leaves. The small molecules pass readily through the kidneys and the large molecules are retained in the circulation for many hours—as long as one or two days. An untoward deposit effect such as has been noted with acacia does not occur with dextran and it does not seem to have an untoward effect upon the diabetic patient. At the moment dextran is prepared as a 6 per cent solution in normal saline. A tiny amount of mercurial antiseptic is present in the solution which seems to prevent it from becoming contaminated easily. A 10 per cent solution, salt-free, has been used for the relief of nephrotic edema.[6] I have not had any experience with this preparation.

The technical use of dextran, gelatin and periston is similar and the effect is comparable; I will speak about their intravenous administration, the quantities and rate of flow later.

The gelatin that I have used has been furnished largely by one company. The products of some companies are said to have a molecular weight of between 20,000 and 500,000. I have objected to the name "plasmoid" for gelatin used by one company, because of the possible inference that it was a substitute for plasma. I wish it to be thoroughly understood that if a patient needs blood he should have blood if it is available. Plasma can be used, but it is inferior in results to any one of the three special materials: dextran, gelatin or periston. The gelatin preparation which I have used is packaged in liter bottles. In a series of urologic operations done by the transurethral approach it was found that under certain conditions equally good results could be obtained from one bottle of blood rather than two, or from two bottles rather

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Read at the meeting of the Minnesota State Medical Association, Duluth, Minnesota, June 13, 1950.

From the section on Anesthesiology, Mayo Clinic, Rochester, Minnesota.

than three if a liter of gelatin were administered.[5] This was found to be true in cases in which a record was kept of the loss of blood accurate to within a few cubic centimeters, and in which it was realized that two or even three bottles of blood should be administered to make up for lost blood or anemia or both.

When dextran was first produced the supply was small. It was not as good as it is now and occasionally it produced an anaphylactoid type of reaction among unanesthetized patients. When my supply was exhausted I used gelatin; I found it necessary to add a vasopressor substance oftener with gelatin than with dextran to get the same blood-pressure-raising effect. On the basis of my experience in 1949, I am confident that five lives were saved with dextran; the patients were in extreme shock and many liters of blood had been administered without result. I did not use more than three 380 c.c. bottles of dextran for any one patient. The improvement in blood pressure and in the general condition of each patient was decided and all recovered. I have had numerous patients in a state of slight shock whose condition improved considerably on administration of one bottle (380 c.c.) of dextran. I would be definitely handicapped in combating surgical shock without dextran, gelatin, or periston.

In Sweden dextran has been used in treatment of patients suffering from burns with excellent results. I cannot speak from personal experience since I have had the opportunity to try it only twice on burned patients. More than 75 per cent of the skin of each patient was burned and neither of them survived more than a day or two after hospitalization. As mentioned previously, however, my remarks are concerned particularly with treatment of surgical and anesthetic shock. I am of the opinion that gelatin plus a vasopressor will give practically the same results as dextran but for a shorter time.

Periston is a solution of polyvinyl pyrrolidone dissolved in Ringer's solution. It was introduced by Weese, a German, in World War II. It is a synthetic substance in the nature of a resin or it might be considered as a soluble plastic substance. The molecules are not large but they are inert except in dogs. Dogs have a special sensitivity to the substance and a shocklike condition develops from it. The German Wehrmacht used a 2.5 per cent solution of periston more than 100,000 times but it did not make too favorable an impression. A 3 per cent solution has about the same colloidal osmotic pressure as plasma and about the same as 6 per cent dextran in normal saline. Weese has written to me to say that the material should be used in a 3.5 per cent solution. I have tried various strengths and I agree that the 3.5 per cent solution is by far the best concentration.[7] With it I have been able to raise blood pressure, with doses as small as 285 c.c., to about the same level as with 380 c.c. of dextran or a liter of gelatin preparation. I have not seen untoward results from the use of the dextran, gelatin or periston. If storage phenomena occur I am not aware of them.

Morrison,[4] who bled guinea pigs to the extent of 3.5 c.c. per 100 gm. of body weight, reported that all animals died which were not treated. In other instances various solutions were infused at the rate of 1 c.c. per 100 gm. of body weight, and the results are as follows: all guinea pigs to which saline was administered died; nine of the ten which were given 2.5 per cent periston died but only four of the ten which received 3.5 per cent periston died; of those to which serum albumin or whole blood was administered none died; five of ten died when dextran was used, and two of ten died when plasmoid was used. Morrison's experiments on rats, with the use of the same procedure as that for guinea pigs, revealed that all died when replacement was not employed; nine of ten died when saline was used; three of ten died when 2.5 per cent periston was used; two of ten died when 3.5 per cent periston was used; one died when serum albumin was administered; none died when whole blood was administered; three of ten died when dextran was used, and two died when plasmoid was used Morrison's work does not bear upon surgical shock; the figures are interesting, however, in connection with an attempt to bleed animals only and to treat them for hemorrhage with several different materials.

Price of these materials is important to the patient when results are equally good with any of them. At the moment, gelatin is cheaper than dextran. Periston is not yet commercially available. When however, results are as gratifying as I obtained for the small series of patients treated with dextran in 1949, patients who otherwise probably would have died, price is not of prime importance.

In my experience as well as that of others expressed in the literature, no one has ever received an overdose of dextran regardless of how much has been given, provided the elevation of blood pressure did not become too great. By this I refer to dextran itself rather than to an overdose of fluids from the standpoint of volume as in a case of cardiac decompensation. Laboratory animals have been given tremendous doses every day for many days and have tolerated it well. My use of dextran has been conservative; I have never given more than three bottles (380 c.c. each) to any one patient during a continuous infusion.

Aside from treatment for surgical shock these materials might be useful in case of a disaster from the explosion of an atom bomb. It is to be hoped that dextran will be manufactured eventually in our own country and that, if investigators can find nothing seriously wrong with the use of periston, it, too, may be made available. If I had a word to describe this category of materials the definition of the expression would be "a substance which maintains the circulating volume in the cardiovascular system." I am without the word, but I wish to use the definition and to say that, in my opinion, the use of such substances in the treatment of surgical shock may give results which are beneficial or even lifesaving.

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WHO REPORTS PROGRESS IN MALARIA CONTROL IN ASIA

A scientific investigation made by the Agricultural Officer attached to the WHO Malaria Control Demonstration Team which has been in operation in the East Bengal area of Pakistan for the last two years, has conclusively proved that malaria control results in a direct increase of the yield of crops and an appreciable decrease in the man hours of labor which have to be expended per acre.

In a report received at the Eastern Mediterranean Regional Office of the World Health Organization from Dr. G. Gramiccia, leader of the WHO Malaria Control Team in Pakistan, particulars of this investigation are given. Surveys were made of the acreage planted with rice, of the number of hours worked per acre, the number of laborers employed, the yield of rice and straw per acre and the number of working hours lost due to illness, in a number of holdings where DDT spraying had been carried out, and also in other holdings which were not sprayed, for control purposes. Since weather and other conditions affecting crop yields were the same for both types of holdings, the 15 per cent increase of yield in the DDT sprayed areas and the decrease of man hours of labor required per acre of over 10 per cent in the same areas, can be fairly attributed to the malaria control work carried out. A further proof is the fact that, in the DDT sprayed areas, no working hours were lost due to illness whereas in the unsprayed control areas, there was a loss of working hours of 2.2 per cent.

The report adds that similar investigations are being conducted in relation to the jute crop, rice and jute being the two principal agricultural products of East Bengal.

The spraying operations for the season in the WHO demonstration area of East Bengal have now been completed 193 square miles with a population of 24,000 souls having been sprayed. Direct investigation of the incidence of malaria has shown that excellent results have been obtained in the control of the disease. No malaria infection was encountered in infants up to one year of age during an investigation of the areas sprayed in 1949 and 1950, or in 1950 only, whereas in the unsprayed control areas, there was an infant parasite rate of 7.1 per cent. Spleen rates and parasite rates in adults showed a considerable decrease in the sprayed areas as compared to the unsprayed areas.

Apart from malaria control work, the WHO demonstration team in East Bengal has established a maternal and child health clinic from which skimmed milk is distributed among children and nursing mothers.

The Pakistan Government has established additional malaria control teams in order to extend the area of operations.

NEWER ASPECTS OF URINARY TRACT INFECTIONS

Diagnosis

BAXTER A. SMITH, JR., M.D.
Minneapolis, Minnesota

THE advances in the medical and surgical management of urinary tract infections have made the importance of accurate diagnosis more essential, rather than less important, as one at first might think. At the present time, one has a good chance to conserve renal function which would have been considered beyond retrieve fifteen years ago. One may apply conservative therapy rather than excision and may be able to avoid multiple stage procedures, which would have been considered unwise a decade ago. In order to determine whether medical or surgical treatment is indicated and the proper type of therapy in both, diagnosis must be as precise as possible.

The general recognition of several new entities of diagnosis and types of infection has appeared. The flora of urinary tract infection has changed somewhat since the advent of the present antibacterial agents.

In diagnosis, the standard methods still apply and no short cuts have been recognized. The history and physical examination remain the same and still have their same importance. Palpation of the prostate and examination of the wet prostatic smear are imperative in all urinary tract infections in the adult male. The presence of cervicitis may prevent permanent clearing of infection of the urinary tract.

Some new advances in examination of the urine have been made. Gross inspection, the two glass test, and microscopic examination of the centrifuged sediment in the wet spread are essential. Very often bacilli are seen in abundance with the high dry lens in the unstained preparation. The absence of pyuria or organisms in the second glass, with pyuria in the first glass, excludes the upper urinary tract as the source of pyuria for practical purposes. The sediment of a voided urine from the female is of value only if negative.

Stain of the urine with methylene blue or Gram's stain will usually denote the type of organism present. Culture is necessary to determine the exact infecting organism and in all serious or resistant infections, should be undertaken. In the presence of stone with infection, culture is essential.

If culture shows no growth and antiseptics and antibiotics have not been given recently enough to inhibit growth, tuberculosis must be excluded. Anaerobic infections, such as urinary tract brucellosis or micro-aerophilic streptococcic infection may be present.

Reiter's disease and amicrobic cystitis or "sterile pyuria" have been considered as virus diseases, but proof has been lacking. The status of pleuropneumonia organisms in the genitourinary tract is not settled.

Bacteriological flora of urinary tract infections has changed somewhat since the advent of the antibiotics. Aerobacter aerogenes is a much more frequent offender, and I believe pseudomonas aeruginosa is also, at least where multiple granulating wounds are present as in the service hospitals.

Stain of the urine for tumor cells may be indicated in determining the cause of resistance of infection to treatment and in differential diagnosis.

The presence of stasis, calculus, necrosis, or foreign body in the urinary tract makes treatment of infection difficult or impossible. Stasis in the bladder may be determined by checking the residual urine by catheter, or by a film after voiding during excretory urography. It should be emphasized that females may carry residual.

Excretory urography is indicated in all cases of serious infection, recurrent infection, or of resistant infection in the urinary tract, if total renal function is satisfactory, to exclude stasis, calculus, necrosis, and foreign body. The importance of the plain film preliminary to the injection of dye is emphasized lest stone or foreign body be obscured by the dye. Compression over the region of the iliac crossing of the ureters will usually effect satisfactory filling of the collecting system.

An excretory urogram will not exclude lesions of the bladder. It usually will give sufficient information to determine whether retrograde

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pyelography is indicated, but may not exclude lesions minor as to size, such as tuberculosis, epithelioma, or cicatricial pyelonephritis. It frequently will not determine the extent or type of gross disease. Small cortical abscesses and perinephric infection may not give definite pyelographic findings.

The excretory urogram is a good general test of renal function and is of great value relative to determination of the status of the uninvolved kidney in unilateral disease warranting surgery, conservative or radical.

A voiding cystogram, with a film taken just at the conclusion of voiding, will indicate the significance of vesical diverticula in diverticula of questionable importance.

Cystoscopy is necessary to rule out vesical lesions contributing to infection, and operative cystoscopy may cure the lesion, such as ureterocele or vesical papilloma. By indigo carmine excretion, the relative function of the two kidneys may be estimated, but a hypoplastic kidney incapable of supporting life may show a good excretion of indigo carmine.

Retrograde pyelography will give necessary information where excretory urograms may fail and is always indicated when one is in doubt. In the determination of borderline renal function of a kidney, the excretion of phenolsulfonphthalein or the clearance of urea may be determined quantitatively, but it is essential that catheter drainage be good and that all the renal urine be collected. This may be accomplished by using a good-sized bulb catheter or a Garceau catheter. The use of an acorn or bulb catheter gives the best pyeloureterogram. Lateral or stereo films may be very informative. Distention of the renal pelvis, and the making of an upright "emptying film," taken ten minutes after filling the pelvis with dye, may be necessary to determine the significance of otherwise questionable stasis or pain.

With obstruction to the upper urinary tract, estimation of potential function may be possible only after several days of drainage by inlying ureteral catheter and/or the remission of acute infection.

At the present time, mannitol or inulin clearance for glomerular filtration and the diodrast or para-aminohippuric acid clearance for tubular mass determinations do not seem practical except under the supervision of an excellent physiological chemist. The tubular mass and blood flow can be determined accurately by catheterization of the renal vein.

Conclusions

Whereas the antibiotics and chemotherapeutic agents have eased the problem of urinary tract infection no end, diagnosis frequently must be more accurate than before, relative to type and degree of infection and impairment of renal function. Only then can full advantage be taken of the possibilities offered by these medications and improved surgery in the preservation of renal function, our main concern.

A REPORT ON PROPAGANDA BECOMES PROPAGANDA

By slur and smear, the report of the house select committee to investigate lobbying, under the chairmanship of Rep. Frank Buchanan of Pennsylvania, *holds up to public contempt books, articles, and public discussion which find fault with the Truman administration.* The critics are represented as a "billion dollar industry" in lobbying.

On the contrary, the activities of administration spokesmen to influence public opinion and voting on legislation are described as "duties of leadership in matters of public policy" inherent in their "relation to the chief executive." In other words, any bureaucrat who speaks for Mr. Truman and the bureaucracy is discharging a duty; any private citizen or group of individuals opposing the administration is an enemy of the people.

It does not require any very searching examination of these theses to determine that Mr. Buchanan and his "Fair Deal" associates have themselves *unloaded a piece of cunning propaganda under the guise of a report on propaganda. They have used the pretext of investigating lobbying to engage in lobbying.* They are lobbying for big government—specifically, Mr. Truman's big government, and for the liquidation of dissent.

Sen. Taft, opportunely speaking on this subject the same day that Mr. Buchanan's majority burst into print, said that the Truman investigating committees are covering up corruption with whitewash.

The object of the corrupt Truman administration is to corrupt the judgment of the public, so that when everybody has sunk to a similar degradation, the political burglars can steal without even attracting notice. To this cause Mr. Buchanan and his associates have contributed what they could. To say that a few millions spent by people devoted to the Republic and to honesty in public affairs is wrong, while at the same time the Truman administration walks off with 60 or 65 billions of the people's money, is simply a diversionary clamor to cover the flight of the bureaucratic John Dillinger.—*Chicago Tribune,* October 7, 1950.

OFFICE TREATMENT OF URINARY TRACT INFECTIONS

HAROLD J. WALDER, M.D.
Duluth, Minnesota

With the addition of numerous drugs to the armamentarium available for therapy in urinary tract infections, the physician occasionally finds it difficult to decide which agent to employ in an individual instance. A brief discussion of the most important urinary antiseptics and the situations in which they may be utilized to best advantage would appear to be in order.

In an effort to see which organisms we most frequently encountered in the practice of urology, we reviewed the results of 220 consecutive urine cultures, which were reported in our office practice and in two Duluth hospitals (Table I). In column 1 is shown the number of times the various organisms were encountered in this series. Column 2 designates those organisms which split urea. Column 3 indicates their reaction to the Gram stain. Note that the Gram-negative organisms occurred approximately two and one-half times as frequently as the Gram-positive organisms.

I have reviewed the work of several authors, and on this chart have endeavored to evaluate the effectiveness of the various drugs against organisms usually found in the urinary tract. Their effectiveness against these organisms is graded as 1-plus to 4-plus, the drug being most effective against those organisms where the 4-plus occurs. The vacant squares in the chart indicate that the drug or antibiotic has little or no known value in inhibiting or destroying that organism in the genito-urinary tract.

Perhaps the most venerable urinary tract antiseptic is hexamethylenamine, otherwise known as methenamine or "Urotropin." Its effectiveness depends upon the splitting off of formaldehyde in the presence of an acid medium. It is not an antiseptic in its own right, and has been shown by Helmholz to be efficient only when the urine is maintained at a pH close to 5. Time has proven the ineffectiveness of this urinary antiseptic in the majority of infections, but this should not blind one to the fact that methenamine has always been curative in some cases, and that it may be found the only agent, when all others have failed, that will bring about sterilization of the urine.

TABLE I.

Organism	220 Cases	Split Urea	Gram Stain	Mandelamine	Sulfa	Sulamyd	Gantrisin	Penicillin	Streptomycin	Aureomycin } —Lederle Duomycin Chloromycetin—Park Davis Terramycin—Pfizer & Co.
Escherichia Coli	106		-	++++	++	+++	+++		++++	++++
Mixed Staph. & E. Coli	23		+ -	++	++	0-+				+++
Proteus Vulgaris	12	X	-	+	+		++		++++	++
Aerobacter Aerogenes	15		-	+	+-	++	+-++		++++	++
Pseudomonas Aeruginosa (B. Pyocyaneus)	11		-		+	+	+-++		++	
Proteus Ammoniae	5	X	-		+	+			+++	++
Staph. Albus	9	X	+	++	+++	+++	++	+++		+++ Rst. to Penicillin
Staph. Aureus	20	X Some strains	+	+++	+++	+++	++	+++		+++ Rst. to Penicillin
Strep. Fecalis	9		+	++	+++	+++	++	+	++	+++ Rst. to Penicillin
Strep. Hemolyticus	7		+	++	+++	+++	++	+++		+++ Rst. to Penicillin
Strep. Viridans	3		+		+++	+++		+++		

Total Gram-Negative Organisms 172
Total Gram-Positive Organisms 71

Following the discovery that ketogenic diets with the accompanying acidosis were effective in the treatment of chronic bacillary urinary infections, the use of mandelic acid was proposed by Rosenheim. It often induces nausea and vomiting, and after prolonged administration may produce hematuria with casts in the urine.

Very little has been written about methenamine or mandelic acid, *per se,* since 1939. Many physicians now use mandelamine, which is a combination of the two, and it is believed to be more effective than either alone. In 1946, Carroll and Allen reported on the treatment of 200 cases with mandelamine. They pointed out that Escherichia coli is susceptible to the antibacterial action of mandelamine. Eighty-five per cent of their cases responded to treatment. This organism was the most frequently encountered and was responsible for approximately 50 per cent of the urinary tract infections in their series and in ours.

Read at the annual meeting of the Minnesota State Medical Association, Duluth, Minnesota, June 13, 1950.

From the Department of Urology, Duluth Clinic, Duluth, Minnesota.

Proteus vulgaris and Aerobacter aerogenes are highly resistant to this drug. These organisms resemble Escherichia coli in staining and cultural characteristics to such an extent that they are often reported as such. It therefore seems advisable that any Gram-negative rod which resists mandelamine therapy should be investigated further for identification, since the organism may be found to be either a Proteus or an Aerobacter aerogenes. Unfortunately, these organisms are also highly resistant to sulfonamides and penicillin.

Mixed infections due to Escherichia coli and Staphylococci comprised 23 per cent of the cases in this series. Based on the work of Carroll and Allen, only about half of these cases respond to mandelamine alone. However, they showed that if these cases are given mandelamine plus penicillin, results are gratifying—the penicillin being effective against Staphylococci, mandelamine against Escherichia coli.

In all except eight cases treated by Carroll and Allen, the urine remained or became acid while receiving a total of three mandelamine tablets four times a day, without other medication or restriction of diet or fluid intake. The eight patients whose urine remained alkaline were resistant to therapy. Of these, three showed Proteus vulgaris which should respond to streptomycin therapy, and five showed Staphylococci which should respond well to sulfa or penicillin therapy.

The sulfa drugs vary in their effectiveness against various organisms. The factors of solubility in the urine, toxicity, and variations in antibacterial activity must be considered. Trisulfa combinations have been recommended because of their individual solubilities, and they are said to be less toxic than any one sulfa alone. However, Dr. Spink, of the University of Minnesota, objects to sulfathiazole because it produces vacuolization of the renal tubules and other toxic effects. He prefers sulfamerazine and sulfadiazine. Some of the newer trisulfa compounds have sulfamethazine in combination with sulfamerazine and sulfadiazine.

Sulfacetamide (commercially sold as "Sulamyd") has the advantage of high solubility, even in the physiological acid range of the urine, thereby minimizing almost to a negligible point the danger of crystal formation. In addition, it combines the features of good antibacterial activity, low toxicity, and rapid renal elimination, resulting in high urinary level. *In vitro* experiments with bacteria isolated from infections of the urinary tract, performed by Lehr, indicate its effectiveness in the concentrations usually maintained in the urine of a patient under treatment with standard dosages. It is recommended that 3 to 4 gm. be given daily for the first two or three days of the acute urinary infection, followed by 2 gm. (0.5 gm. four times daily) for an additional five or six days. Alkalinization of the urine does not appear to be necessary. However, the incidence of loss of appetite, nausea and vomiting is high, and when it is used in office treatment, the patient should be warned of these possibilities.

Gantrisin is an effective chemotherapeutic agent in some infections caused by Escherichia coli, Pseudomonas aeruginosa (B. pyocyaneus) and Proteus bacilli. Reports of its value in treating infections due to the latter two organisms become more questionable as the drug is more extensively used. Also, there appears to be no relation between the blood or urine sulfonamide levels and its bacteriostatic properties. Reactions similar to those occurring with other sulfonamides occur during the administration of gantrisin. Crystalluria, however, is not observed either in an acid or an alkaline urine.

The introduction of penicillin with its potency in combating coccal infections immediately led to its use in this group of infections, and it has found its chief usefulness in the treatment of Staphylococcus aureus and albus and beta hemolytic streptococcus. Recently, it has been noted that although no resistant strains of gonococci are reported, there are strains of Staphylococci which are developing resistance to this antibiotic. It has almost no place in the treatment of infections caused by Streptococcus faecalis and fails utterly in those produced by Escherichia coli and Pseudomonas aeruginosa (B. pyocyaneus). Initial high dosage is important. However, the necessity for maintaining a consistently high blood level has been overemphasized in recent months. In urinary tract infections, 100,000 units of crystalline penicillin G in water every twelve hours in sufficient in practically all cases. For oral dosage, one should give five times as much as by intramuscular injection. It should be given on an empty stomach. In using penicillin, observe the patient for delayed penicillin reactions a week or so later, such as urticaria or serum-sicknesslike disorders.

Streptomycin has been shown to be effective against various Gram-negative bacilli frequently responsible for urinary infections which are refractory to sulfonamides and penicillin. Most of the large medical centers have laboratory facilities for determining streptomycin sensitivity on urine cultures, but this service has not been available to many physicians.

The results of streptomycin therapy are most impressive in infections caused by Escherichia coli, Aerobacter aerogenes, Proteus ammoniae and vulgaris. Pseudomonas aeruginosa and certain strains of Streptococcus faecalis respond only moderately well (Adcock). Using 2 to 3 grams of streptomycin daily, a blood level of 20 units per c.c. of serum can be attained, and those organisms falling within this range of sensitivity, as determined by *in vitro* studies, may be considered susceptible to therapy. In urinary infections it has been determined that 1 gram per day is sufficient.

The effectiveness of streptomycin is enhanced when the urine is alkaline; around a pH of 7.2 to 7.4. This generally can be attained by the oral administration of sodium bicarbonate or sodium citrate. Potassium citrate may be substituted for the sodium citrate when the cardiac status of the patient poses a problem. When streptomycin is effective, the bacteria generally disappear from the urine in three to seven days.

The neurotoxic effect of the drug on the vestibular apparatus rarely occurs during the usual ten-day course of therapy. It has recently been pointed out that delayed loss of hearing is much more frequent with dihydro-streptomycin than with streptomycin; therefore, Spink and others are avoiding the prolonged use of dihydro-streptomycin.

Aureomycin, chloromycetin and terramycin are all of advantage against essentially the same Gram-negative bacillary infections and Gram-positive cocci, especially those that are resistant to penicillin. They are primarily bacteriostatic and not bacteriocidal. While I have listed these antibiotics together, it is well not to think of chloromycetin as interchangeable with aureomycin. Chloromycetin is not as effective as aureomycin in Staphylococci infections, but it is more effective in Proteus infections. Generally speaking, the dosage of chloromycetin should be approximately two times that of aureomycin or terramycin. Three gm. are recommended the first day, 2.0 gm. for five successive days, then 1.0 gm. daily for an additional four days, all doses being appropriately divided. Results are favorable with this regimen. The drug is well tolerated and devoid of gastrointestinal, neurotoxic, cutaneous or allergic reactions.

If aureomycin is given with milk on an empty stomach, there is less intestinal upset and no decrease in absorption.

Thus we see, when we glance at the chart, that no one drug is effective against all organisms. A Gram stain of the urinary sediment suggests which drug or antibiotic might be most effective, even though the organism has not been specifically identified.

Reports vary in the incidence of finding both bacillary and coccal infections from 21 per cent up to 65 per cent. If one finds both Gram-positive and Gram-negative organisms, there is more than a 50 per cent chance that the Gram-negative organism is Escherichia coli and, therefore, chemotherapy or some antibiotic should be used which is effective against this organism, plus selected therapy against the Gram-positive organisms. In the office treatment of urinary tract infections a combination, such as mandelamine plus penicillin, or sulamyd or gantrisin plus penicillin, may be desirable.

Prior to the advent of sulfonamides in the middle of the last decade, the chemotherapy of urinary infections was more or less on an empiric basis. Whatever benefits were derived from the therapeutic agents were probably the result of changes in the pH of the urine with varying bacteriostatic effect.

During the past ten years, several clinical reports have appeared in the literature on serenium and pyridium. Although one may accept the fact that they do not meet the modern criteria for a "urinary antiseptic," and apparently none of the urinary antiseptics do, they are bacteriostatic against some of the pyogenic organisms and are said to have analgesic effect upon an inflamed mucosa. They are contraindicated in chronic parenchymatous nephritis, especially in patients with a low phenolsulfonphthaline output. We have used these products frequently, but we are never sure in just which cases they will be most advantageous.

Regardless of the form of therapy used, a follow-up of cases of urinary tract infections treated in the office is most important. We should endeavor to define our results as: (1) controlled —symptom free, urinary cultures sterile; (2) improved—symptom free or clinically better, but urinary smears or cultures positive; and (3) unimproved—symptoms and cultures unchanged. This also includes those cases which have relapses.

Of interest is the fact that a remarkable change has been observed in the bacterial flora of urinary tract infections. Especially striking is the decided increase in the frequency of isolating Aerobacter aerogenes and Pseudomonas aeruginosa (B. pyocyaneus). Several authors have noted this trend. Dr. Grayson Carroll believes it is due to the oragnisms' resistance to antibiotics and other drug inhibitors, and as time goes on, these surviving strains will, undoubtedly, constitute a higher percentage of urinary infections as the more susceptible strains are destroyed. It is evident that asepsis must be diligently practiced, when it is realized that such an infection carried to another patient is so pathogenic and so difficult to treat successfully. We are again in need of a new weapon to fight these surviving bacteria. On glancing at the chart, note that the new antibiotics are only moderately effective against Aerobacter aerogenes and of no value against Pseudomonas aeruginosa.

In discussing these two resistant organisms, two new antibiotics should be mentioned. Polymyxin has been shown to be fairly effective against Pseudomonas aeruginosa; and neomycin is effective against Pseudomonas and Proteus infections. However, they have both been found to be nephrotoxic and will probably not appear on the market for general use.

In summary then, urinary tract infections should first be investigated—at least by a Gram stain; then the mode of therapy most effective against the etiologic agent should be used.

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ARMY DECENTRALIZES APPOINTMENTS FOR MEDICAL DRAFT REGISTRANTS

The inauguration of a decentralized system of Reserve officer appointments, which will expedite action on applications made by draft-eligible physicians, dentists, and veterinarians, has been announced by Major General Raymond W. Bliss, Army Surgeon General.

Under the new system, the entire processing of Reserve commissions will be accomplished in the six continental army areas and overseas commands for applicants now enrolled under the current draft call. Commissions will be issued by army commanders and overseas commanders to applicants who qualify without referral to the Department of the Army.

For those subject to induction by Selective Service, the following procedure will be followed:

Initially, the registrant will fill out a questionnaire that will include a statement as to whether he desires to accept a commission. This questionnaire will accompany him to his local induction station when he reports for his physical examination. At that time he will be given another opportunity to indicate his willingness to accept a commission, if he has not previously so indicated.

Records will then be forwarded to the appropriate army headquarters where the qualifications of the registrant will be determined. If qualified, the army commander will send the registrant a letter of appointment in an appropriate grade in the Medical, Dental or Veterinary Corps Reserve, with instructions to complete an oath of office within seventy-two hours and notify his selective service board of his commissioned status.

Physicians and dentists accepting commissions under these circumstances will receive the special $100 authorized pay for volunteers.

SIGNIFICANCE AND MANAGEMENT OF SPONTANEOUS PNEUMOTHORAX

W. R. SCHMIDT, M.D.
Minneapolis, Minnesota

SPONTANEOUS pneumothorax occurs more frequently than we realize. At an Army induction center one in 500 examined gave a history of having had a spontaneous pneumothorax.[3,7] It is likely that many of the minor episodes are never diagnosed and are treated as an attack of "pleurisy."

In the majority of our cases there has been no history of abnormal exertion; the symptoms most commonly noted are pain in the chest, usually severe, dyspnea, and frequently cough. The classical physical findings of pneumothorax are present when the lung is collapsed about 40 per cent of its normal volume. A good chest x-ray taken in the upright position will confirm the diagnosis.

There has been considerable confusion as to the significance of an attack of spontaneous pneumothorax. This is not surprising when one considers that in the 1930's it was common teaching in many medical schools to regard tuberculosis as the etiological agent in 95 per cent of all cases. Cecil's *Textbook of Medicine* in the 1940 edition[2] states that 80 per cent are of tuberculous origin. However, since 1933 a number of case reports have been published in which the authors[4] stress the frequency in which spontaneous pneumothorax has occurred in patients with no pulmonary disease, tuberculous or otherwise. A study of 100 Massachusetts General Hospital patients with spontaneous pneumothorax by Meyerson[5] revealed that thirty-six had no demonstrable pulmonary disease, while in sixty-four the pneumothorax was secondary to some pre-existing pulmonary disease. About half of those with pulmonary disease had tuberculous infiltrations; however, the number with activity is not stated.

A study of twenty cases of spontaneous pneumothorax admitted to this hospital reveals the figures shown in the accompanying tabulation.

FINDINGS IN TWENTY CASES OF SPONTANEOUS PNEUMOTHORAX

Age	15 to 30
Number of those with previous attacks	7
Bilateral attacks	1
No history of exertion	17
Pain	20
Severe pain	9
Cough	5
Dyspnea	13
Positive Mantoux	6
Fibrotic infiltration on chest x-ray	5
Emphysema with blebs	2
Negative chest x-rays	13
Total cases	20

It is of interest to note that a history of exertion occurred in only three cases. Three patients first noted the onset of pain when awakening from sleep. Four patients were treated initially as having an attack of "pleurisy" with taping of the chest. One patient was thought to have a "coronary attack," and several electrocardiograms were made before a chest x-ray revealed the proper diagnosis.

Our attitude towards this problem may be summarized as follows: Spontaneous pneumothorax usually occurs because of a rupture of a bulla or bleb on the lung. In a majority of the cases the bleb represents a congenital or acquired weakness in an otherwise normal lung. In others the bleb is a natural sequence of some underlying pulmonary disease such as pulmonary tuberculosis or cystic disease. It is of great importance that we recognize this distinction in the pathogenesis of the pneumothorax as the after-care of the two groups differs.

With this in mind we can formulate a rational plan of management of the patient following recovery from the pneumothorax. In the group that has no demonstrable pulmonary disease we can be reasonably sure the patient will remain in good health; we need not restrict his physical activity beyond a very short recovery period. He must be warned that he has a 14 to 20 per cent chance of a recurrence of the pneumothorax either on the same side or, less likely, on the contralateral side. As a precautionary measure, follow-up chest x-rays can be obtained every six months for a period of two years. In the group in which the x-ray reveals or history strongly indicates underlying pulmonary disease, his follow-up care is dependent on the type of pulmonary disease present. If, for example, there is an area of infiltration suggestive of tuberculosis (and this may appear quite innocent), thorough investigation to rule out activity

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Read at the annual meeting of the Southern Minnesota Medical Association, Mankato, Minnesota, September 11, 1950.

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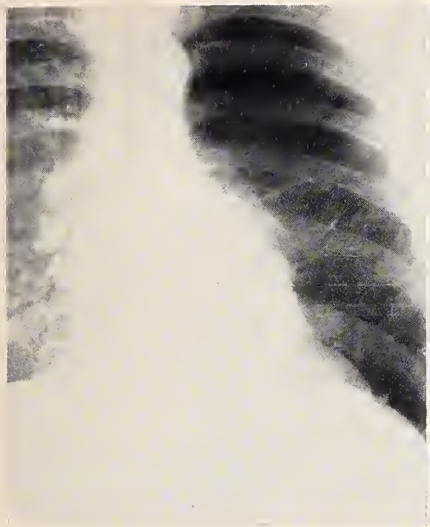


Fig. 1. Case 1. Admission film, February 28, 1950. Extensive pneumothorax, left.

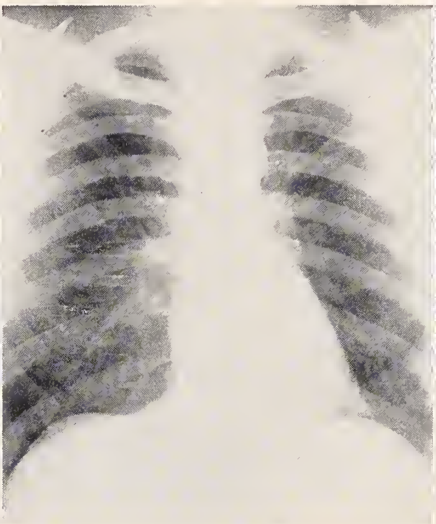


Fig. 2. Case 1. Film, March 4, 1950. Left lung expanded after aspiration of air.

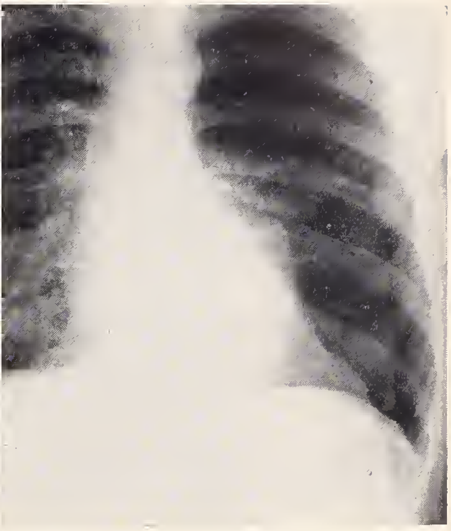


Fig. 3. Case 1. Film, May, 1950. Left lung collapsed. Chronic pneumothorax.

of the lesion is in order, including several sputum and gastric washing cultures. Even when the lesion appears to be inactive, the patient must be followed more carefully than those in the first group. While the number of patients who develop a progression of their tuberculous lesion will be small, we have seen a fair number of patients admitted to the Veterans Administration Hospital with far advanced tuberculosis who gave a history of a spontaneous pneumothorax several years prior to admission. Review of the x-rays taken during the time of the pneumothorax will usually show a small area of infiltration suggestive of tuberculosis.

The management of the patient who develops a spontaneous pneumothorax will vary according to the severity of the attack. Minor degrees of pneumothorax, especially if seen several days after the onset, may require nothing more than symptomatic treatment with the patient remaining on an ambulatory basis. The more severe degrees of collapse require hospitalization. It is common practice in most institutions to allow the lung to remain collapsed on the theory that the fistula will heal more rapidly. The air will then absorb and the lung expand. Undoubtedly most cases will respond to this form of therapy, and when the lung expands quickly and steadily, it will be the treatment of choice.[1] However, when the lung fails to expand steadily and where relapses occur, this method becomes wasteful and should be abandoned for more active therapy. Prolonged hospitalization and loss of time from work is a considerable economic burden to most individuals. Since the pneumothorax in the majority of instances can be regarded as a mechanical accident to an otherwise perfectly healthy individual, it becomes the duty of his physician to restore him to a normal state in a reasonable period of time. The expectant treatment, when unduly prolonged, has an additional disadvantage in that in an occasional case the collapsed lung will become trapped in its abnormal position by a fibrin and later fibrous membrane forming over the visceral pleura. Expansion of the lung then becomes difficult or impossible without open thoracotomy and decortication of the fibrous "peel" from the lung.

The following case report is an example of this complication:

Case 1.—L. E., aged thirty-six, was admitted to the Minneapolis Veterans Hospital on February 28, 1950, because of an extensive spontaneous pneumothorax on the left (Fig. 1). He had had a similar episode in 1947 for which he was treated by three months' bed rest with recovery. Four days after this admission the chest was aspirated and 1000 c.c. of air removed. The subsequent roentgenogram showed almost complete re-expansion (Fig. 2). The collapse, however, returned. Unfortunately, the patient refused more active type of therapy and was continued on bed rest. Eight weeks after the admission reaspiration was done and the lung found to be trapped in the collapsed position by a thickened membrane over the visceral pleura. Decortication was suggested on April 26, 1950, but refused by the patient who left the hospital on May 29, 1950, with a chronic pneumothorax (Fig. 3). The patient has a 10 per cent chance of getting a pneumothorax on the contralateral side which could easily result in sudden death.

In this case, when collapse recurred, more active therapy, namely catheter suction of the pleural space, in all probability would have restored him to a normal status in a few days.

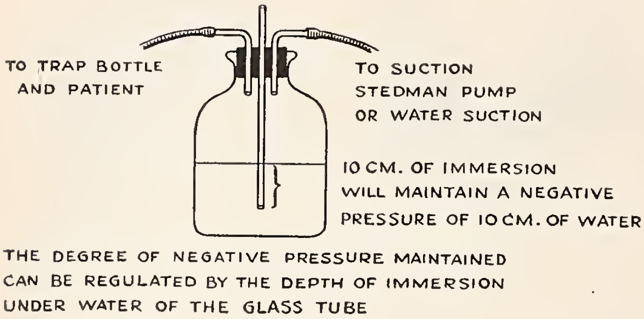

TO TRAP BOTTLE AND PATIENT
TO SUCTION STEDMAN PUMP OR WATER SUCTION
10 CM. OF IMMERSION WILL MAINTAIN A NEGATIVE PRESSURE OF 10 CM. OF WATER
THE DEGREE OF NEGATIVE PRESSURE MAINTAINED CAN BE REGULATED BY THE DEPTH OF IMMERSION UNDER WATER OF THE GLASS TUBE

Fig. 4.

In the event that expansion is not proceeding satisfactorily after several days of bed rest, it is suggested that the air be removed by needle aspiration. There is little danger of producing a high negative intrapleural pressure and thus reopening the fistula by this maneuver since the lung in this early stage will be readily expandible and will fill the pleural space as rapidly as the air is removed.[3]

Failure of the air leak to close promptly (and this is indicated when the lung fails to expand after needle aspiration or when the pneumothorax recurs after aspiration) is an indication for continuous aspiration. An additional indication for this type of therapy is the development of a tension pneumothorax which is a constant source of danger to the patient unless promptly and continuously relieved. Continuous aspiration of the air is easily accomplished by insertion of an intercostal catheter. This is a simple bedside procedure using local anesthesia and a trochar. The catheter is attached to a suction apparatus. We use a Stedman type of suprapubic pump. If no other pump is available, a water faucet suction attachment will be satisfactory. Some type of mercury or water breakover mechanism must be interposed in the suction line in order to avoid producing too high a negative pressure. A negative pressure of 10 cm. of water is ideal. A satisfactory type of regulator which can be made in a few minutes from material readily available in any small hospital is described by Overholt[6] and is shown in Figure 4.

The following case report demonstrates the indications for catheter suction:

Case 2.—Mr. G. B., aged twenty-nine, was admitted July 25, 1950, because of a right spontaneous pneumothorax occurring on July 11, 1950. He was treated for one week by bed rest at which time his dyspnea increased. Chest aspirations were then done with failure of the lung to expand. On admission to the Veterans Hospital the right lung was about 80 per cent collapsed; catheter suction was immediately instituted. Re-x-ray of the chest twelve hours later showed complete expansion. The tube was clamped and removed after a trial of ambulation failed to reopen the fistula. The patient was discharged completely recovered on July 31, 1950, with instruction to have follow-up x-rays at six-month intervals.

Almost invariably the lung expands promptly with this method and remains expanded. The majority of the air leaks will close with great rapidity when the visceral and parietal pleura are maintained in contact by continuous suction for a period of twenty-four to forty-eight hours. When the lung expands, the patient will experience considerable pain requiring opiates for relief. After the lung has been expanded for twenty-four to forty-eight hours, the tube may be clamped and suction discontinued. The tube is then removed as soon as it is evident that the pneumothorax is not recurring.

On removing the catheter, it is well to seal the opening in the chest with collodion and cotton for a few hours to prevent any sucking of air back into the pleural space.

The patient who is afflicted with several recurring attacks of pneumothorax, and particularly when there is a history of bilateral involvement, is best treated by obliteration of the pleural space. This has been accomplished by the induction of a chemical pleuritis with various irritants such as hypertonic glucose, silver nitrate (Brock[1]) and iodized talc (Bethune). We have abandoned other methods in favor of open thoracotomy with scarification by dry gauze of the visceral and parietal pleura along with clamp excision and suture of the bleb and fistula. Suction catheters are introduced into the chest to maintain full expansion in the immediate postoperative period. This procedure is safe, and since it can be done without waiting for the patient to recover from his current attack of pneumothorax, will not require more than a week of hospitalization. The resulting pleural symphysis will prevent recurrence of a pneumothorax that is frightening to the patient as well as disabling and at times dangerous. The following case history illustrates an example of this therapy:

Case 3.—Mr. K. L. L., aged twenty-six, was admitted to the Minneapolis Veterans Hospital on April 21, 1950, because of a left spontaneous pneumothorax. There was a history of an initial attack in 1943 followed by recurrences in August, 1947, June, 1948, and June, 1949. All were on the left side. They were not associated with exertion. Mantoux tests were negative. Thoracotomy with scarification of the left visceral and parietal pleura was done on May 1, 1950, and the patient discharged on May 9, 1950.

The occasional case of chronic pneumothorax with a nonexpandible lung is treated in a similar manner as demonstrated by the case shown below:

Case 4.—Mrs. B. was admitted to St. Mary's Hospital on the service of Doctor T. J. Kinsella on January 2, 1949, because of a chronic pneumothorax of many months' duration (Fig. 5). She had had the various methods of conservative management including re-expansion of the lung with catheter suction on two occasions. The pneumothorax, however, promptly recurred. Finally a membrane formed over the visceral pleura trapping the lung in its collapsed position with the fistula remaining open. She was treated by open thoracotomy and decortication of the lung. The open fistula was easily seen in a nest of blebs on the lingula of the left upper lobe. The fistula and blebs were removed by clamp excision of a small peripheral portion of lung parenchyma with suture behind the clamps. The lung expanded readily. She has been well since (Fig. 6).

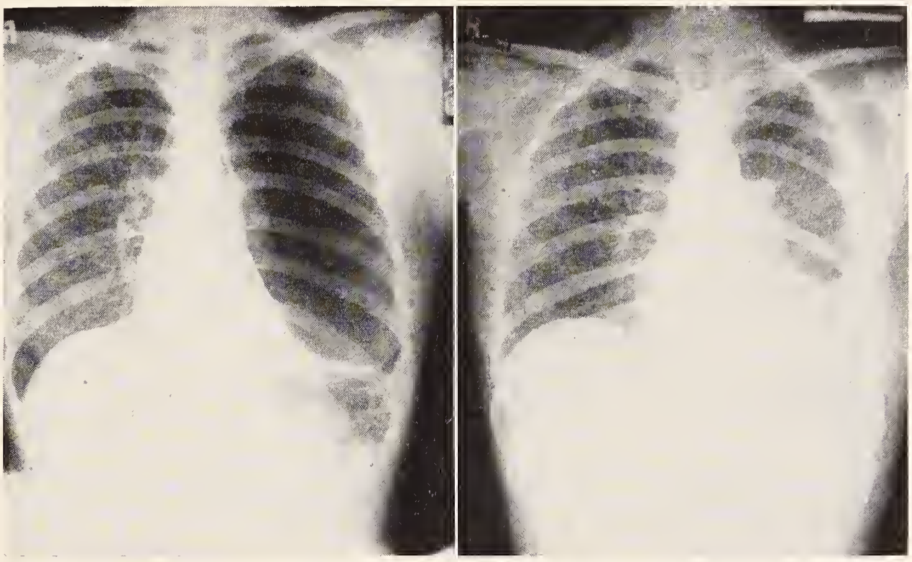


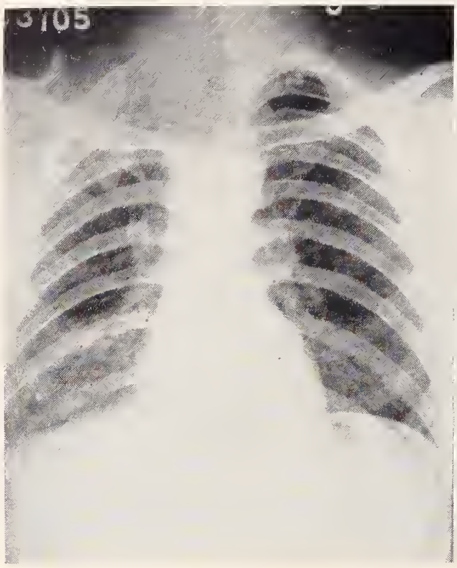
Fig. 5. (*left*) Case 4. X-ray, January 3, 1949. Chronic pneumothorax, left.
Fig. 6. (*right*) Case 4. X-ray, January 15, 1949. Postoperative re-expansion, left lung, after decortication, excision of blebs and fistula, and scarification of the pleura.

Spontaneous pneumothorax may occur as a complication of surgery. This is particularly hazardous in chest surgery when it occurs in the contralateral side. We have had two deaths in patients who had undergone pneumonectomy and developed a spontaneous pneumothorax on the opposite side postoperatively. It can and does occur following other types of surgery. Every surgeon and anesthetist must be aware of the possibility of this complication in patients who develop respiratory difficulties during anesthesia without other adequate explanation. The anesthetist can readily feel for the trachea which may be shifted from its normal midline position to the side opposite the pneumothorax. The chest will be hyperresonant to percussion. Insertion of a needle into the pleural space which will allow release of the tension pneumothorax is a lifesaving procedure.

The diagnosis may be difficult when the pneumothorax occurs in the postoperative period. Good x-rays are difficult to obtain in a patient who is very dyspneic. Consequently the diagnosis here at times must be based on physical examination alone. The presence of amphoric breathing and hyperresonance to percussion may be the clues to the proper diagnosis. The following case affords a typical example of this problem.

Case 5.—A. S., a Veterans Hospital patient, aged thirty-eight, was admitted on March 3, 1949, because of tuberculosis involving the right upper lobe (Fig. 7). In June, 1946, he had had a right pleural effusion and in March, 1947, a right spontaneous pneumothorax. The lesion in the right apex was present at that time. He was admitted to this hospital in March, 1949, because of progression of the lesion with sputum positive for tubercle bacilli. A three-stage thoracoplasty was done in July, 1949, and a right upper lobe lobectomy on May 10, 1950, because of failure of the thoracoplasty to convert the sputum.

His postoperative course was uneventful except for atelectasis of the right middle and lower lobes which necessitated bronchoscopic aspiration on the second postoperative day, May 12, 1950. A routine film of the chest was obtained immediately after this latter procedure to check on the progress of the atelectasis. Shortly after this procedure the patient became very dyspneic. The attending staff was not aware of the film showing the pneumothorax, and a portable bedside film obtained when the patient was very dyspneic was so blurred by motion that it did not contribute to the diagnosis. The physical findings were not thought to be suggestive of pneumothorax. The true situation was recognized the following day and the air removed from the left chest with prompt improvement in symptoms.



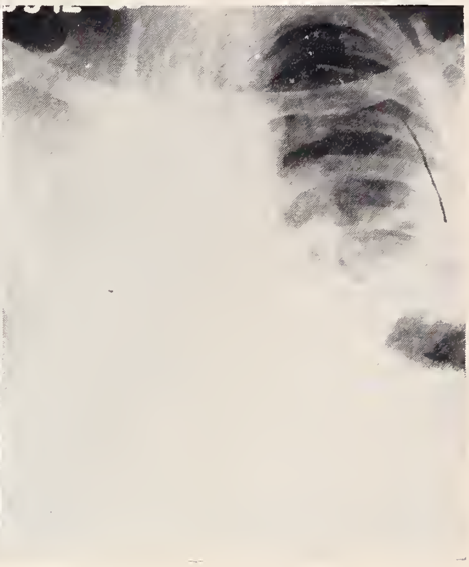
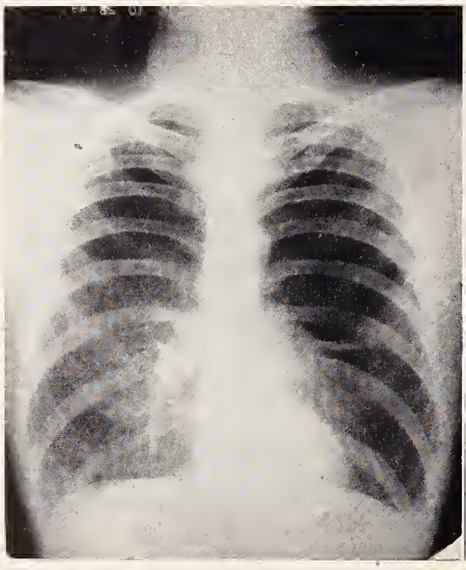


Fig. 7. (*left*) Case 5. Film, May, 1949. Tuberculosis, right upper lobe. History of spontaneous pneumothorax in 1947.

Fig. 8. (*right*) Case 5. Film, May 12, 1950. Patient developed left spontaneous pneumothorax four days postoperatively (right upper lobe lobectomy under thoracoplasty). This occurred two hours after bronchoscopy to relieve right lower lobe atelectasis (photograph retouched).



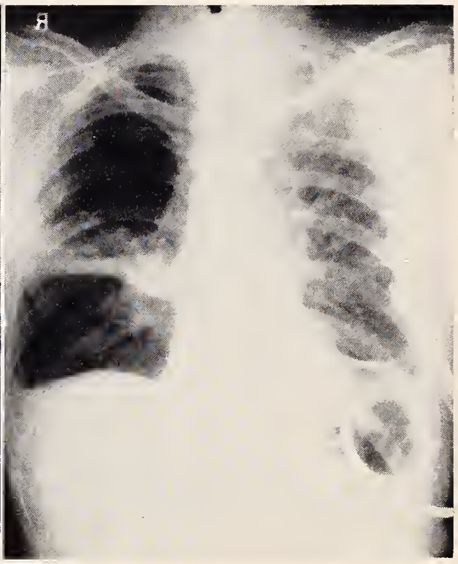


Fig. 9. (*left*) Case 6. Preoperative chest film in a case of giant bullous emphysema. Note the bilateral giant bullae occupying the upper lung fields with smaller bullae in the lower lobes. Note also the compressed pulmonary parenchyma below the large bullae on the left.

Fig. 10. (*right*) Case 6. Postoperative chest x-ray on December 1, 1949, showing left side well expanded after excision of several large bullae. The air-containing bullae on the right side have enlarged, probably due to coughing and straining postoperatively.

As air travel becomes more common we should be familiar with the effects of altitude on air in confined spaces, such as occurs in large pulmonary blebs or spontaneous pneumothorax. At 17,000

(*Continued on Page 58*)

URINARY ACETONE—ITS DETECTION AND VALUE IN TREATING AMBULATORY DIABETICS

BURTIS J. MEARS, M.D.
Saint Paul, Minnesota

IN diabetes mellitus the body cannot adequately use its carbohydrates and so turns to fat as a source of energy. Fats, *per se,* cannot be used by the body. They must first be broken down by the liver to the ketone bodies, namely, acetone, diacetic acid and betaoxybutyric acid. The muscles readily use these acids but their capacity to do so is limited. If the ketone bodies are formed faster than they can be utilized by the muscles, acidosis results and the ketone bodies are excreted in the urine, giving an objective sign of acidosis.[2,4]

This acidosis with ketonuria is found in various clinical states such as wasting diseases, strict reducing diets and starvation, diarrhea, et cetera. The acidosis in these conditions has the same etiology as in diabetic acidosis, namely, the formation of ketone bodies from fats faster than the muscles can use them.

With the finding of both sugar and ketone bodies in the urine, a diagnosis of diabetes can be made, because with the benign causes of glycosuria, such as lactosuria and renal glycosuria, acidosis does not occur. Of course, not all patients with diabetes are in acidosis. In a few exceptional circumstances ketonuria and glycosuria can occur without diabetes. For example, starvation, as seen in vomiting and diarrhea, will call for an excess breakdown of fats causing ketonuria, and then when the body is therapeutically flooded with intravenous glucose, glycosuria will also be present. Severe liver disease with malnutrition, faulty glycogen storage, and decreased carbohydrates tolerance, could show ketonuria and the oral intake of carbohydrates could cause a temporary hyperglycemia and glycosuria. Patients on self-imposed, strict reducing diets may develop a temporary diminished carbohydrate tolerance along with increased fat catabolism. Ketonuria will be present, and here again, glycosuria may become apparent after carbohydrate ingestion.

Testing for acetone in the urine by the Rothera method rather than looking for diacetic acid is done by this author because acetone appears first in acidosis and disappears last as the condition is corrected, and is technically easier to detect. A possible criticism of the Rothera test is that it is so delicate that it will show faint traces of acetone before true acidosis occurs, but in this state of affairs, the trace of acetone is a warning against imminent acidosis. It must be remembered that in renal insufficiency, so often seen in the older diabetic, the excretion of the ketone bodies is impaired, and acidosis may exist with a negative or weakly positive test.

The Rothera Test.—To approximately 5 c.c. of urine in a test tube is added about 1 gm. of Reagent I (5 gm. sodium nitroprusside and 200 gm. dry ammonium sulfate, pulverized and mixed).

Reagent II (concentrated ammonia) is carefully layered on top of the urine. A purple ring developing in a few seconds at the junction of the two layers indicates the presence of acetone.[6]

A test so simple and valuable as this should be routine whenever sugar is found in the urine.

Although the present accepted definition of diabetic coma usually depends upon the ascertaining of the level of the carbon dioxide-combining power of the blood, diabetic acidosis can easily be defined as being present whenever acetone in any amount above a trace is found in the urine of a diabetic. Diabetic acidosis is no longer thought to be due to dietary indiscretions but rather due to one of the following conditions: (1) insufficient insulin, (2) infection, (3) trauma either accidental or surgical, (4) hyperthyroidism, or (5) pregnancy.

Whenever the ambulatory diabetic showing a strongly positive Rothera test presents himself for treatment, the decision of hospitalization must first be made. Flushing of the face, dyspnea, hyperventilation, dulling of the sensorium, anorexia and vomiting are all ominous signs and should suggest the necessity of immediate hospitalization.

If ambulatory treatment is undertaken, the following procedures and instructions are suggested:

1. Treat the cause of acidosis, keeping in mind the etiological factors: insufficient insulin, infec-

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Read at the annual meeting of the Southern Minnesota Medical Association, Mankato, Minnesota, September 11, 1950.

tion, trauma, and the decreased sugar tolerance of pregnancy and hyperthyroidism.

2. Force fluids. There is nearly always some degree of dehydration in acidosis.

3. Adequate carbohydrate intake. In severe diabetic acidosis treated in the hospital where repeated blood sugars are available, much evidence is in favor of withholding sugar for at least twelve hours or until a blood sugar level has started to drop.[1,5] In the acidotic patient treated at home, adequate insulin always carries the danger of a sudden hypoglycemia. A large glucose intake, although perhaps prolonging the hyperglycemia and glycosuria, does not materially prolong the acidosis[3] and is good insurance against hypoglycemia. If there is anorexia or fever, a simple but effective means to insure proper carbohydrates intake is to instruct the patient to drink at least two quarts of fruit juice every twenty-four hours. This amount of juice will give approximately 200 gm. of carbohydrates.

4. Qualitative Benedict's test four times a day.

5. Insulin dosage is adjusted to the amount of sugar found in the urine. All long-acting insulins are stopped until the patient is brought under control. The urine is tested before meals and at bedtime. A dosage of regular insulin is established, depending on the degree of glycosuria and the previous demands of the diabetic. A fairly safe rule is to give the previous dose of insulin four times a day if the Benedict test is 4 plus. Thus a diabetic, who has been fairly well controlled on 25 units of slow acting insulin per day, presenting himself with fever and signs of acidosis, can usually tolerate at least 25 units of insulin four times a day if the glycosuria is 4 plus. As the acidosis is brought under control, the glycosuria will diminish before the acetonuria.

Conclusions

The Rothera test is a simple and delicate test for acetone in the urine. The presence of acetonuria in any great amount signifies an increase in fat catabolism and/or metabolism. In the diabetic, this is the initial step in the production of acidosis.

The rules as to the urine testing four times daily and the adjustment of the insulin dosage to each urine test is not only applicable to the acidosis patient but sometimes is the only method whereby the fragile diabetes of the young, the pregnant and the hyperthyroid can be properly controlled.

A simplified explanation of the etiology of acidosis has been presented.

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MODERN TREATMENT FOR PARKINSON'S DISEASE

Modern treatment for the one million victims of Parkinson's Disease in the United States can result in this distressing malady's being well controlled, and often alleviated almost completely, Dr. John C. Button, Jr., chairman of the Medical Advisory Council of the Parkinson's Disease Foundation recently reported.

The disease, which is also known as "shaking palsy," causes progressive paralysis accompanied by uncontrollable trembling. It may be caused by sleeping sickness, influenza, grippe, and in older individuals, hardening of the arteries of the brain.

Dr. Button, who is medical director of the Button Neurological Institute, Orange, N. J., stated that "a large proportion of the public long has been under the mistaken impression that little or nothing can be done for the estimated one million sufferers of Parkinson's Disease in this country. That such a belief is far from the truth is being demonstrated every day in the few institutions where the modern treatment of this condition is properly and adequately given."

The purpose of the Parkinson's Disease Foundation, which is planning to set up units of its national organization in the major cities of the United States, is to provide funds for the treatment of victims of Parkinson's Disease, most of whom have lost their means of livelihood as a result of long continued disability.

The Parkinson's Disease Foundation, which has national headquarters at 744 Broad Street, Newark, N. J., is interested in hearing from individuals and organizations interested in treatment of this disease.

SKIN ALLERGY

Newer Trends in Diagnosis and Therapy

STEPHAN EPSTEIN, M.D.
Marshfield, Wisconsin

SKIN allergy embraces a very wide field. One cannot hope to cover much ground in a brief discussion; therefore, I shall just describe some newer trends in diagnosis and treatment of allergic skin diseases. There are many points which I have to omit, but I have prepared mimeographed lectures on allergic skin diseases which will cover both the points I am discussing here and those we have to miss.*

Like many others, we shall use the terms "dermatitis" or "eczema" only as an over-all classification to denote certain common acute and chronic superficial inflammations of the skin. The terms "eczema" and "dermatitis" are used here interchangeably, although we often reserve the designation of dermatitis for the more acute cases and eczema for the more chronic ones.

Classification

For practical purposes, allergic dermatitis or eczema may be divided on a somewhat pathogenic basis as follows:

1. Atopic dermatitis (neurodermatitis).
2. Contact dermatitis.
3. Infectious eczemas (bacterial, mycotic and other parasitic eczemas), including seborrheic dermatitis.
4. Miscellaneous forms of eczema.

All classifications are arbitrary. Furthermore, very often we encounter a combination of different forms of eczema or one form of eczema may gradually change over into another one. In spite of this, it is important for proper management and evaluation to grasp the principal distinctions between the different forms of eczema and to recognize to which category a case of eczema belongs.

Atopic Dermatitis (Neurodermatitis)

Atopic dermatitis is not just "an allergy." Table I will present the most important contributing pathogenic factors.

TABLE 1. CONTRIBUTING PATHOGENIC FACTORS IN ATOPIC DERMATITIS

1. Atopic sensitivity
2. Other skin sensitivity
    a. Epidermal sensitivity
    b. Infectious sensitization
3. Constitution
    a. Heredity
    b. Neurovascular instability
    c. Personality traits
4. Hormonal factors
    a. Hypothyroidism
    b. Estrogen imbalance
    c. Hormonal deficiency in the male
5. Environmental factors
    a. Psychologic conflicts and emotional upsets
    b. Situations of stress and strain
6. Complications and aggravating factors
    a. Secondary infection
    b. Contact dermatitis
    c. External irritation: mechanical, chemical, actinic, heat, humidity

This is quite a list. No wonder this form of eczema is still our most difficult problem; only a *total* approach, considering *every* angle will give results in more severe cases.

The various forms of atopic dermatitis are skin manifestations of a constitutional disorder which also provides the background for bronchial asthma, hay fever and certain other so-called allergic disturbances. Unfortunately, not much is known about what constitutes this abnormality.

The most common forms of atopic dermatitis are the following:

1. Atopic infantile eczema.[1] *
2. Disseminated atopic dermatitis (neurodermatitis). This form of eczema is observed most often in the adolescent or younger adult, but it may occur at any time of life. It is a dry, chronic eczema which favors the flexor surfaces of the body, especially neck, antecubital and popliteal areas and wrists. In more severe cases, the eczema may also cover the face and scalp or any other part of the body; at times the whole skin may be involved, and we are dealing with a generalized atopic dermatitis. Most common complications are secondary infections. Atopic dermatitis may be accompanied by hayfever, asthma and occasionally by cataracts.
3. Localized atopic dermatitis (lichen simplex chronicus circumscriptus).

From the Department of Dermatology, Marshfield Clinic, Marshfield, Wisconsin, and the Division of Dermatology (director, Dr. H. E. Michelson), University of Minnesota Medical School.

Presented at the annual meeting of the Minnesota State Medical Society, Duluth, Minnesota, June 13, 1950, under the auspices of the American College of Allergists.

*Copies of these lectures on allergic dermatitis, urticaria, and drug eruptions are still available upon request.

*Infantile eczema will *not* be discussed in this paper.

Lichen simplex chronicus circumscriptus is found mostly in nervous, highstrung persons between forty and sixty years of age, but may also occur at other ages, especially around puberty. This condition consists of isolated patches of a chronic dry eczema. Favorite locations are the nape of the neck, vulva and perineal regions in the female, and outer ankles, forearms, scrotum, perineum and anus in the male. Usually only one or a few patches are present. The pruritus is very marked, and the condition may cause discomfort out of all proportion to the objective findings.

4. Moist forms of atopic eczema, especially some cases of "dysidrotic" eczemas of hands and feet, and also some cases of "nummular eczema." The relationship of these forms of eczema to the atopic constitution is still controversial.

Allergic Concept of Atopic Dermatitis

Atopic dermatitis embraces those forms of dermatitis that are associated with atopic sensitivity. Atopic sensitivity of the skin, among other things, is characterized by immediate whealing reactions to tests. Immunologically, it is identical with the anaphylactic type of sensitivity. The antigens are usually proteins. Free antibodies often can be demonstrated in the blood stream. The shock organ of anaphylactic sensitivity in the skin is the vascular-connective tissue layer. A dermoepidermal sensitivity apparently also exists in these individuals.[6]

It would be wrong to assume that sensitization phenomena are the only, or even most important factors, in atopic dermatitis.

Role of Allergy in Atopic Dermatitis.—It would be folly to rely on positive skin tests to find the "cause" of atopic eczema. Scratch and intradermal tests may be helpful in regard to environmental allergens. A careful history and analysis of the case will not infrequently indicate some definite sensitivity to house dust, feathers, molds or pollens, or other environmental allergens. Food tests are notoriously unreliable, especially when done as intradermal tests. On the other side, we must always be aware that a negative skin test does not exclude sensitivity to that particular antigen. Some patients with atopic dermatitis are sensitive to human dandruff and human skin.[8] The clinical importance of these observations has not been determined as yet.

Psychogenic Factors

This aspect of atopic dermatitis has been emphasized, perhaps too much, in recent years. Nervous and psychologic factors play an important part in some instances.[5] Many patients with atopic dermatitis are of the hyperactive and of the hyperreactive type. The nervous tension of these patients is usually apparent; many suffer from hyperhydrosis of the hands and feet.

Psychologic problems play a greater role in the severe generalized cases, especially with acute flare-ups involving the face. Often we find those telling "neurotic excoriations." Walsh and Kierland[11] consider the following characteristic emotional patterns most prominent in generalized atopic dermatitis. Suppressed hostility toward the mother or to another supporting figure was present in most of their cases. The skin was apparently utilized in these patients as the site for expressing strong unconscious conflict relating to exhibitionistic tendencies and a frustrated desire for love and affection.

In those patients whose dermatologic reaction had begun in childhood, the emotional disorder appeared deeply rooted in the personality, and striking results from psychotherapy were not obtained. In that group whose dermatitis began as adults, however, with one exception, improvement in the emotional disorder was paralleled by a complete or nearly complete clearing of the dermatologic reaction.

Other cases indicating psychologic conflicts are the circumscribed lichen simplex chronicus. According to Lewis and Cormia,[4] the psyche unconsciously selects any convenient locus minoris resistentiae; the conflicts are expressed by the type of lesions as well as by the localization.

Treatment of Atopic Dermatitis

Treatment has to consider all or some of the following:**

1. Proper topical treatment.
2. Management of pruritus.
3. Allergic factors.
4. Psychologic factors.
5. Endocrine factors.
6. General supportive measures.

Here I shall discuss only a few newer remedies.

**"Management of Allergic Dermatitis" has been discussed by the author recently in Postgraduate Medicine 8:126-130, August, 1950; the reader is referred to this paper.

Antihistamines.—To be frank, the antihistamines have been disappointing. At least they did not live up to expectations. What *can* we expect from them? In urticaria they are very helpful, and the pruritus can be controlled in many instances. However, there are some cases which do not respond. For these it may be necessary to shift from one antihistamine to another. What is the preferred antihistamine? I do not know. At present I still favor Pyribenzamine or Neoantergan during the day, and Benadryl at night. If these fail, then I prescribe an antihistamine of a different constitution, one of the newer piperazine compounds, such as Perazil or Di-Paralene. These latter drugs have a long-acting effect. In atopic dermatitis and in those cases of contact dermatitis which are connected with swelling and severe itching, we also use antihistamines. They relieve the pruritus more or less. Sometimes but only sometimes, they are very helpful, especially in the acute flare-ups of atopic dermatitis and in poison ivy dermatitis. They do not affect the course of the dermatitis, but the pruritus can be suppressed almost completely in some instances. In severe cases, the parenteral use of antihistamines is often more effective. We use Histadyl 20 to 30 mg. twice or three times a day intramuscularly, or Benadryl 30 to 50 mg. intravenously twice a day. The latter should be injected very slowly. It should not be used in hypertensive patients. The efficacy of these drugs is not entirely due to their "antihistaminic" effect. Many of the antihistamines have also an anesthetic, sedative and antispastic action.

Antihistaminic Ointments.—The antihistaminic ointments are a welcome and helpful addition to the topical treatment of certain itching dermatoses. However, these ointments are used too indiscriminately and often in the wrong place. It is important to know *when* and *for what condition* to use them. They are helpful mostly in chronic pruritus ani and vulvae and in those patches of dry eczema which we dermatologists call lichen simplex chronicus. There are a few more occasions where they may help, such as, an itchy subsiding atopic or contact dermatitis, drug eruptions, insect bites. Do *not* use them in an acute or weeping dermatitis.

Which anthistaminic ointments are preferred? There are numerous such preparations available, and many more on trial. I do not believe there is too much difference between them. Ointments with Histadyl, Trimeton, Thephorin, Benadryl and Pyribenzamine seem to work equally well. I have also had experience with two newer preparations which are not yet available commercially—Perazil cream and Chlorotrimeton cream. Both are well tolerated and compare favorably with other antihistaminic ointments.

There is one drawback to all antihistaminic ointments. Sensitivity to them occurs not infrequently, perhaps as high as 5 per cent in some instances. We must become aware of the danger of sensitization and warn the patient to stop treatment at the first sign of irritation. Otherwise the patient may not realize that he has become allergic to the ointment, because antihistaminics, as well as other anesthetic ointments, often still afford some relief from pruritus even after the patient has become sensitized.

ACTH and Cortisone.—Other new drugs of promise in the treatment of allergic dermatitis are ACTH (adrenocorticotropic hormone) and Cortisone. They are, at times, quite effective in atopic dermatitis and exfoliative dermatitis, and also chronic urticaria. However, the effect in these conditions usually is not as prompt and dramatic as in rheumatoid arthritis or in asthma.

Desensitization in Atopic Dermatitis.—Desensitization in atopic dermatitis is still a controversial subject. It certainly should not be a routine measure, but in persistent, long-standing cases of generalized atopic dermatitis and also in some instances of lichen simplex chronicus, cautious desensitization with a house dust extract is at times very beneficial. In recent years I have preferred a mixture which includes also barn dust, molds, bacterial and fungus antigens. Naturally if there are other known, specific environmental allergens such as ragweed, desensitization may be tried with these alone or in addition to the general mixture. Desensitization in atopic dermatitis is at least as difficult and unpredictable as in asthma. Proper dosage can be established only by experience; customarily we start with a 1:1,000,000 or 1:10,000,000 dilution. At times this must be diluted even more. An overdose is usually recognized by itching and an acute flareup within twenty-four hours after the injection. This is always an indication to reduce the dose to at least one-fourth or even less of the preceding one.

Overdosage may produce severe and long-lasting aggravations.

Contact Dermatitis

Contact dermatitis is usually caused by external contacts with what we call simple chemicals. We distinguish between *toxic* (nonallergic) and *allergic* contact dermatitis.

Toxic contact dermatitis is more often encountered in industrial dermatitis where the use of strong chemicals, solvents, cleaners and abrasives may lead to such an occurrence. In nonindustrial cases, contact dermatitis is usually of the allergic type, although there are also numerous nonallergic contributing factors.

Allergic Contact Dermatitis

Although the allergic nature of this form of contact dermatitis has been recognized for a long time, the mechanism is still not fully understood. Contact dermatitis is provoked by so-called simple chemicals such as inorganic compounds or anilin dyes, in contrast to the highly complex protein allergens encountered in atopic diseases. Apparently the actual antigen is a combination of a simple chemical with a protein. The "simple chemical" is called a hapten. This term denotes that small molecular portion of an antigen which confers upon it its immunologic specificity. The protein used for this combination is probably one of the body's own proteins, but in some instances is perhaps derived from the bacterial flora of the skin.

The complexity of modern life brings all of us in more contact with chemicals that are potentially sensitizers. There are always new sources of sensitization; some produce a rather typical picture.

Contact dermatitis from nylon stockings produces a rather characteristic picture of a weeping dermatitis behind the knees and in front of the ankles. The rest of the leg usually does not show any signs of inflammation, or only a mild dermatitis is present.

Sensitization to DDT appears to be rare when one considers the widespread use of insect sprays containing this chemical. Hollander[3] reports a very acute dermatitis of the exposed parts from this source. I have observed a few cases of dermatitis from such insect sprays. They presented a less severe dermatitis of face and neck, combined with a papular itching eruption of arms and legs.

Dermatitis of the feet is too often considered dermatophytosis or "athlete's foot." Contact dermatitis from shoes and stockings is not infrequent. A sharp borderline of the dermatitis above the ankle is very suggestive.

Furthermore, in contact dermatitis of the feet, the webs between the toes are usually spared in contradistinction to dermatophytosis.

Nail polish, as a source of contact dermatitis, has been recognized for many years but still is often overlooked by the physician. Nail polish dermatitis usually occurs in patches of a more chronic eczema. Preferred locations are the eyelids, the cheeks and the neck. Practically never is it seen on the fingers.

A new source of "cosmetic dermatitis" has been recognized by Furman, Fisher and Leider.[2] Rubber pads or sponges used to apply face powder apparently are a rather frequent cause of contact dermatitis of the face in young women.

Another contact dermatitis very important in the Midwestern area is contact dermatitis from weeds, especially ragweed. This dermatitis covers the exposed areas—face, arms and legs around the ankles; in severe cases the whole body may be afflicted. In many instances the dermatitis persists more or less all year around, because the patient is often a farmer and contacts weed infested grain or feed all the time. Even so, there is usually an aggravation from the end of August to the end of September.

In this form of ragweed dermatitis, the patient is allergic to the *oleoresins* of the plant and not to the protein fraction. Therefore, scratch tests and intradermal tests are negative, but a patch test with the plant or the pollens or an oleoresin extract from the weed produces a dermatitis.

It is important to recognize the etiology of this dermatitis, because the patient can be helped only by avoidance of contact, or by desensitization.

That brings us to the question of desensitization in contact dermatitis. Theoretically, it can be done, but it is practical only in plant dermatitis especially from poison ivy or from weeds. How much can we expect? Not the impossible. If a farmer is highly sensitive to ragweed, the chances are we will not be able to desensitize him to such a degree that he will be able to continue as a farmer during the ragweed season. If his

TABLE II. DIAGNOSIS OF INFECTIOUS ECZEMA

History.—An eruption preceded, complicated or flared-up by infection is suggestive.
Suggestive Morphologic Criteria.—Signs of infection. Sharply outlined lesions, especially with round and polycyclic borders.
Bacteriologic Diagnosis.—Smears and cultures are difficult to evaluate because of the ubiquity of staphylococci and streptococci. Negative results are not convincing either, as they may be due to existing allergy.
Skin Tests.—Severe delayed reactions to bacterial antigens are suggestive, especially when provoking flare-ups.
Focus of Infection.—Suggestive.

degree of sensitivity is less, then it may be possible to raise his level of tolerance to such an extent that he can continue most of his chores if he is careful to stay away from threshing and all excessive exposure to ragweed. How about poison ivy dermatitis? Prophylactically, parenteral or oral desensitization is helpful in many cases, but never give injections of a poison ivy extract during the acute phase of the dermatitis.

Infectious Eczemas

It is only recently that we have recognized, or rather rediscovered, the great role of infectious factors in eczemas. In a general way we may say that an infectious eczema is due to a combination of an infection and an eczema. This association may occur in several ways.

The causative bacteria in infectious eczemas are mainly staphylococcus aureus and streptococcus hemolyticus. However, Escherichia coli, the proteus, the pyocyaneus, and the diphtheria bacillus, as well as others, may also cause infectious eczemas.

The diagnostic criteria of infectious eczema are presented in Table II.

The most common forms of infectious eczema are perhaps the following:

1. Infectious eczematoid dermatitis; this means an acute weeping dermatitis around an infection of the skin, a draining sinus or following an infected injury.
2. Infectious eczema of the ears and behind the ears. In this case, the infection may develop secondarily to a contact dermatitis from metal bows of glasses, or to a seborrheic dermatitis.
3. Infectious eczema of the lower legs, originating from a stasis dermatitis, a varicose ulcer or a lichen simplex chronicus, with or without "id"-like generalized eruption.
4. Infectious eczemas of the hands.
5. Infected contact dermatitis.
6. Infected infantile eczema.

Table III shows the main sources of infection.

TABLE III. SOURCE OF INFECTION

Local Infection (skin)	*Focal Infection or Infestation*
Furuncle	Teeth, tonsils
Draining abscess	Gallbladder
Draining ear	Phlebitis
Impetigo	Respiratory tract
Intertrigo	Gastrointestinal tract
Paronychia	Cervix
Angular stomatitis	Prostate
Dermatophytosis	Monilia infection of the vagina
Moniliasis	Monilia infestation of intestines

The principles governing the treatment of infectious eczema are outlined in Table IV.

TABLE IV. TREATMENT OF INFECTIOUS ECZEMA

1. Evaluation of factors.
2. Local treatment of infection and eczema.
3. Systemic treatment of infection.
4. Correction of contributing factors.
   (Contact sensitivities, food or environmental allergies, anemia, impaired circulation, diabetes.)
5. Supportive treatment.
   (Vitamins, liver extract, proteins, ultraviolet irradiation.)
6. Psychosomatic approach.
7. Removal of foci of infection.
8. Desensitization.
9. Non-specific therapy.

The detailed treatment of infectious eczemas has been outlined in another paper (see footnote on Page 38). Here I shall present only an evaluation of certain antibiotic and antiseptic ointments (Tables V and VI).

TABLE V. ANTIBIOTIC OINTMENTS

Antibiotic	*Recommendation*	*Reason*
Penicillin	Do not use.	Danger of sensitization
Tyrothricin	In less severe infections.	Not a very potent antibiotic, but rarely sensitizing.
Streptomycin	In selected resistant cases (e.g., otitis externa).	Usually inferior to bacitracin and aureomycin. Danger of sensitization.
Bacitracin	*Method of choice.*	Potent antibiotic, low sensitizing potential.
Aureomycin	Most potent antibiotic ointment; but: be Careful!	Sensitization index not yet established.

TABLE VI. ANTISEPTIC OINTMENTS

Antiseptic	*Evaluation*	*Remarks*
Ammoniated mercury 3% to 5%	Efficient and clean.	Watch for sensitivity.
Chloresium ointment	Efficient but messy.	Usually well tolerated.
Furacin	Good antiseptic, staining.	Do not use in eczema; potent sensitizer
Rivanol 0.5% to 1%	Good antiseptic, staining.	Watch for sensitivity during treatment.
Vioform 1% to 3%	Good antiseptic, slightly staining.	Usually well tolerated in eczemas.
Sulfonamides 5% to 10%	At times very efficacious.	Use with greatest care. Potent sensitizers. Sulfadiazine least dangerous.

Apply antiseptic ointment only to *local area* of infection, not to Id-like generalized eruption.
Remember: All antiseptics are sensitizers.

From these last tables it may appear that I am stressing unduly the danger of sensitization. But this is not the case. Patients with infectious eczemas are much more prone than others to develop sensitivities to drugs, especially to ointments. All antiseptics are sensitizers, some more than others.

Drug Sensitivity

Whenever a patient with an infectious, or any other, eczema develops a generalized eruption or an aggravation, think of drug sensitivity.

The most important therapeutic measure is immediate cessation of the suspected medication. Symptomatic treatment should be given both externally and, especially, internally. What to do depends on the symptoms. In a contact dermatitis we start treatment with wet compresses and mild lotions. In most other drug eruptions there is little need for external treatment except in the presence of marked pruritus. In this case we use an antipruritic lotion as follows:

Calmitol 5%
Zinc oxide 10%
Calamine lotion q.s.

or an antihistaminic, or at times an anesthetic ointment.

Fluids should be given freely in most drug eruptions. Laxatives, especially salines, are indicated. Antihistamines are frequently of help in relieving the pruritus. If oral medication fails, we use Benadryl intravenously, or Histadyl intramuscularly.

Desensitization to drugs is not used very widely because most drugs can be avoided. However, in some instances, desensitization is indicated and effective, especially in cases of sensitivity to antibiotics such as penicillin and streptomycin. This applies especially to physicians and nurses who have become sensitized and cannot avoid contact with these antibiotics.

Treatment of Serum Sickness Type of Reaction.—This condition is often rather distressing. The patient has a more or less rough time for five to seven days, then recovers usually rapidly and spontaneously. Antihistamines are usually only helpful in relieving the pruritus, but do not have much effect on the course of the condition otherwise. My favorite medication is calcium gluconate intravenously, 10 to 20 c.c. twice a day, given very slowly.

The intravenous use of procaine, (1 gram in 1,000 c.c. of normal saline) has been very helpful in cases of serum sickness.[10] However, this procedure is not completely harmless; especially in a drug eruption one should think twice before injecting 1 gram of another drug. Furthermore, the fear that intravenous procaine would be contraindicated in serum sickness from procaine penicillin cannot be dismissed completely. It is true that the overwhelming majority of patients who have become sensitized to procaine penicillin are sensitive to penicillin only, and not to procaine, but occasionally the patient is sensitized to the procaine fraction. In such a case an intravenous injection of procaine would be very dangerous. Recently, Schiff and Schiff[7] reported an anaphylactic reaction following repeated injections of intravenous procaine.

Prevention of Drug Eruption.—As long as we have to use drugs, we cannot help causing drug eruptions. But there are certain things we can do to lower the incidence of these reactions.

1. Whenever possible, use drugs that have a low sensitizing potential. For instance, avoid penicillin preparations suspended in oil and beeswax. Reactions from these mixtures occur about twice as often as when aqueous suspensions are used.

2. Do not use a relatively dangerous drug such as gold, or sulfonamides, if more harmless drugs are available.

3. Warn your patient about the possibility of the development of drug sensitivity so that he may stop the drug immediately when symptoms appear.

4. Sometimes reactions from insulin or liver extract can be prevented when antihistamines are given before or with the injection. S. Wm. Simon[9] reduced the number of penicillin reactions by mixing penicillin with Decapryn: 100,000 units of crystalline potassium penicillin G were dissolved in 1 c.c. saline solution which contained 5 mg. of Decapryn Succinate.

Once a patient has developed a drug reaction, the following suggestions may prevent it from turning into a more serious condition:

1. The drug must be stopped at once, and one must make sure that the patient does not take a single additional dose of that particular drug.

(Continued on Page 46)

BASIC FACTS ABOUT GALL-BLADDER SURGERY FOR GENERAL PHYSICIANS

DAVID P. ANDERSON, M.D., F.A.C.S.
Austin, Minnesota

An address entitled "Surgery of the Gall Bladder" was delivered at the second annual meeting of this society on August 3, 1893, by Dr. W. J. Mayo of Rochester. In 1899, Dr. Mayo again talked before the society on the subject of gall-bladder surgery, and his presentation was discussed by Dr. J. B. Murphy of Chicago. Dr. Mayo's observations on surgery of the gall bladder and bile ducts in 1899 were published in the *Annals of Surgery* of that year.[4] It is of interest to note that as early as 1899 he had performed the new operation of cholecystectomy four times and that he had successfully accomplished a cholecystoenterostomy with the use of a Murphy button. These early accomplishments, all of which were apparently presented before this society, were climaxed by Dr. Mayo's classical report in 1903 of 311 operations for benign gall-bladder disease with an astounding mortality of only 2.5 per cent.[3] Cholecystectomy was performed thirty-three times with only one death, and thirty-one operations for common duct stone were reported with only one death.

Since these early days of gall-bladder surgery, cholecystectomy has proved to be a highly successful operation, as Dr. Mayo so correctly predicted. We now know that cholecystectomy, with or without choledochostomy, when performed for colic due to gallstones, is followed by a very high percentage of satisfactory results. However, all too many failures still occur following biliary tract surgery. Some failures, or incomplete relief of symptoms, may be attributed to irreparable damage to the liver and bile ducts because of neglected, long-standing disease prior to operation. Other unsatisfactory results after operation on the gall bladder and bile ducts are the direct responsibility of the physician, and are too often due to the lack of application of proven basic facts in selecting patients for the operation and in making certain that the operative procedure answers all of the problems that may be present.

Whether or not he does his own gall-bladder surgery, the general physician must assume responsibility for the success or failure of the surgical treatment of biliary tract disease. He has the first opportunity to see the patient, often during the significant acute colic, and the best chance to evaluate properly the symptoms and clinical findings. He is the one who advises surgery. If his judgment is poor but his advice followed, many unsatisfactory results will attend. He frequently performs his own surgery or selects the attending surgeon, and, in so doing, is directly or indirectly responsible for any technical surgical failures. It is thus essential that the general physician be thoroughly acquainted with the basic rules to be followed in selecting and preparing patients for gall-bladder surgery, and he must have at least a good idea of what constitutes a safe and adequate operation.

TABLE I. BENIGN DISEASE OF THE BILIARY TRACT, ACUTE AND CHRONIC

Operations	Number	Hospital Deaths	Mortality %
Cholecystostomy	7	..	..
Cholecystectomy	149	1	0.7
Cholecystectomy and choledochostomy	55	3	5.5
Choledochostomy	9	..	..
Total	220	4	1.8

It is our purpose today to discuss certain basic facts about surgery of the gall bladder and bile ducts that must be understood if we hope to continue to improve our results. As a background for this discussion, we have reviewed our own biliary tract surgery. This review, for the sake of completeness, includes all operations wherein the biliary tract was either directly or indirectly involved.

Statistical Data

As shown in Table I, we have performed 220 operations for acute and chronic benign disease of the biliary tract with four deaths. This mortality rate of 1.8 per cent is reasonably satisfactory, but we believe that it can and should be reduced. Reports from the Mayo Clinic[5] and the Lahey Clinic[1] record operative mortality rates of slightly less than 1 per cent in surgery of benign biliary tract disease.

Read at the annual meeting of the Southern Minnesota Medical Association, Mankato, Minnesota, September 11, 1950.

TABLE II. SUMMARY OF HOSPITAL DEATHS IN OPERATIONS FOR BENIGN BILIARY TRACT DISEASE

Patient Sex-Age	Diagnosis	Operation	Complications	Interval
G.N. M-83	Acute cholecystitis; perforation of gall bladder and duodenum; peritonitis; choledocholithiasis with obstructive jaundice	Choledocholithiotomy; cholecystectomy, and closure of duodenal perforation	Wound disruption (healed); broncho-pneumonia	27 days
K.K. F-73	Chronic calculous cholecystitis and choledocholithiasis without jaundice	Cholecystectomy and choledocholithiotomy	Acute coronary occlusion	24 hours
J.W. F-60	Chronic calculous cholecystitis and choledocholithiasis with obstructive jaundice	Cholecystectomy and choledocholithiotomy	Residual common duct stone; suppurative cholangitis	6 weeks
A.K. F-42	Chronic calculous cholecystitis	Cholecystectomy	Massive pulmonary embolus	8 days

A summary of the four postoperative deaths in our series is shown in Table II and is self-explanatory. Suffice it to say that the following additions or corrections now have been made in our technique in the hope of reducing postoperative deaths: (1) controlled anticoagulant therapy with dicumarol is used routinely; (2) exploration of the common duct is routinely accompanied by dilatation of the ampulla of Vater with Bakes dilators, and if there is any question of its patency, the ampulla is explored through a transduodenal incision; and (3) no compromise is made for the sake of speed or convenience in our routine closure of abdominal incisions with stainless steel wire sutures.

TABLE III. OPERATIONS FOR BENIGN BILIARY TRACT DISEASE INCIDENTAL TO OTHER LESIONS

Operation	Number	Hospital Deaths
Subtotal gastrectomy (ulcer); cholecystectomy	2	..
Subtotal gastrectomy (Ca); cholecystectomy	1	..
Subtotal gastrectomy (ulcer); cholecystostomy	1	..
Subtotal gastrectomy (ulcer); choledochostomy	1	1
Subtotal gastrectomy (Ca); cholecystectomy and choledochostomy	1	1
Total gastrectomy and colectomy (Ca); cholecystostomy	1	..
Ileocolectomy (Ca); cholecystectomy	1	..
Incarcerated diaphragmatic hernia; cholecystectomy	1	..
Total	9	2

TABLE IV. SUMMARY OF HOSPITAL DEATHS IN OPERATIONS FOR BENIGN BILIARY TRACT DISEASE INCIDENTAL TO OTHER LESIONS

Patient Sex-Age	Diagnosis	Operation	Complications	Interval
P.G. F-77	Carcinoma of stomach; chronic cholelithiasis with cholecsystoduodenal fistula and complete stricture of the ampulla Vater	Subtotal gastrectomy; cholecystectomy with excision of cholecystoduodenal fistula and stomach en bloc; choledochostomy and division of ampulla stricture	Uremia	5 days
J.L. M-32	Chronic duodenal ulcer with massive hemorrhage; common duct obstruction with jaundice, inflammatory, due to proximity of ulcer to the ampulla Vater	Subtotal gastrectomy and choledochostomy	Massive pulmonary embolus; small, localized left subphrenic abscess	10 days

A summary of operations on the gall bladder and bile ducts incidentally performed, either electively or from necessity, during the course of other operations is shown in Table III. The two postoperative deaths in this small series are summarized in Table IV. It can readily be seen that the deaths were not attributable to the biliary tract surgery and that this additional surgical procedure constituted a very necessary part of the total operation.

TABLE V. OPERATIONS FOR MALIGNANT DISEASE OF THE BILIARY TRACT AND PANCREAS

Operation	Number	Hospital Deaths
Cholecystectomy, choledochostomy and partial hepatectomy (Carcinoma of gall bladder)	1	..
Choledochojejunostomy (Carcinoma of pancreas)	1	..
Choledochostomy (Intraductal carcinoma)	3	1
Radical pancreatico-duodenal resection (Carcinoma of ampulla Vater)	2	2
Total	7	3

On seven occasions we have encountered primary malignant disease of the biliary tract or pancreas. The operations performed are shown in Table V, and the three postoperative deaths in this group are summarized in Table VI.

We have operated upon three patients, all children, with traumatic rupture of the liver and bile ducts. All recovered after varying periods of drainage from the resulting biliary fistulae.

TABLE VI. SUMMARY OF HOSPITAL DEATHS IN OPERATIONS FOR MALIGNANT DISEASE OF THE BILIARY TRACT

Patient Sex-Age	Diagnosis	Operations	Complications	Interval
L.J. F-51	Metastatic carcinoma of liver; primary site; intraductal or pancreas	Exploration and choledochostomy	Carcinomatosis	5 weeks
W.S. F-63	Adenocarcinoma of ampulla Vater	Radical pancreatico-duodenal resection	Re-admitted with late jejunal obstruction due to internal pancreatic fistula	2½ months
R.K. M-63	Adenocarcinoma of ampulla Vater	Radical pancreatico-duodenal resection	Uremia and hepatic insufficiency due to intraductal liver metastases	19 days

Selection of Patients for Gall-bladder Surgery

The most important single factor in improving the results of surgery of the gall bladder and bile ducts is the proper selection of patients for operation. Cattel[2] has shown that patients who have continuing symptoms after cholecystectomy frequently have some other lesion that had been present at the time the cholecystectomy was performed. He states, "The good results are largely dependent upon the care with which these patients are selected for operations, in order to make certain that one is operating upon a patient with symptoms relievable by removal of the gall bladder."

We believe that operations on the gall bladder should be restricted to those patients with gallstones. This does not mean that we can always make an accurate preoperative diagnosis, or that we do not occasionally remove a diseased noncalculous gall bladder. It does mean, however, that we do not advocate surgery for the patient with dyspepsia, vague distress and food intolerances, with x-ray evidence of nothing more than a "poorly functioning" gall-bladder.

The patient with acute cholecystitis or typical acute gallstone colic will almost invariably receive relief from an adequate gall-bladder operation. All such patients should be treated surgically if they are reasonable operative risks. Evidence of gallstones by x-ray is sought in elective cases, and persistent non-filling of the gall bladder on cholecystogram, in a patient with a good history of gall-bladder colic, is taken as presumptive evidence of calculous disease. Preferably all elective patients, but particularly those with atypical symptoms, with or without x-ray evidence of gallstones, should be investigated thoroughly before a decision is made to operate. If this is not done, we will invariably overlook small duodenal ulcers, hiatal herniations and numerous other lesions which may simulate gall-bladder disease.

Selection of Gall-bladder Operations

We must not only select patients for gall-bladder operation but we must perform the type of operation that is best for the particular needs of the patient. It is undeniably true that cholecystectomy is an excellent operation, but the surgeon who treats all gall-bladder disease by cholecystectomy alone is doomed to many failures. In addition to being adequate, the operation must also be safe.

Cholecystostomy is a safe operation, as Dr. W. J. Mayo demonstrated in 1903. However, it is not followed by complete relief of symptoms in a high enough percentage of patients to justify its use except for poor-risk patients or whenever the usual anatomical landmarks are obscured by an inflammatory process. We employed cholecystostomy in approximately 3 per cent of the operations in this series, and with increasing experience we are using it less and less.

Cholecystectomy alone is a satisfactory operation when the disease process is limited to the gall bladder. It is a safe operation, provided the surgeon avoids the pitfalls that lead to technical failures. A careful anatomical dissection under direct vision is probably the best assurance of a safe cholecystectomy. We always clearly expose the common duct and the hepatic duct as well as the cystic and hepatic arteries. We believe that the cystic duct should be ligated flush with the common duct and opened for exploration if necessary, in order to avoid the rare but distressing complication of a retained cystic duct stone. We carefully peritonealize the gall-bladder fossa, using a 0000 chromic suture, and interpose omentum, if necessary, in order to prevent adherence of the pylorus and duodenum to the gall-bladder fossa.

Choledochostomy, usually with cholecystectomy, is a very essential part of the surgeon's armamentarium in treating biliary tract disease. It is now generally recognized that about 15 per cent of patients operated for gallstones will also have stones in the common duct, and that the common duct must be explored in one-third to one-half of all gall-bladder operations in order to avoid overlooking silent common duct stones. In our series we explored the common duct in approximately one-third of the operations for benign disease. Stones were found within the duct in about one-half of the patients explored.

The indications for exploration of the common duct have been repeatedly outlined in the surgical literature by various authorities. The procedure *per se* adds very little to the morbidity of the cholecystectomy, and the gratifying results obtained when "silent" stones and other lesions of the common duct are detected and treated fully justify its frequent use. We have found the graduated Bakes dilators safe and satisfactory for completing the exploration of the common duct and dilating the ampulla of Vater. When one has passed a 7 or 8 mm. dilator through the ampulla, he is much more confident that no residual stones remain within the duct and that any small fragments or debris will readily pass through the ampulla.

When it is difficult or impossible to pass a probe or dilator through the ampulla of Vater, we explore the ampulla through a transduodenal incision. This is often the only way that one can definitely diagnose an impacted stone at the ampulla, a fibrosis of the ampulla, or, rarely, a malignancy of the lower end of the common duct.

Conclusions

We have discussed some of the basic facts about gall-bladder surgery that must be kept in mind if we hope to continue to improve our results. We have especially emphasized the fact that we should almost invariably restrict operations on the gall bladder to patients with gallstones, and in elective cases a thorough preoperative investigation is advisable to detect co-existing lesions which, if untreated, will continue to cause symptoms. The operative procedure selected should be conducted safely and must answer all of the problems that may be present.

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SKIN ALLERGY

(Continued from Page 42)

The best way to make certain is to tell the patient to refuse further drugs, because he may otherwise receive one or two more doses before the "stop order" on the hospital order sheet is actually carried out.

2. When the patient has become sensitized to drugs, we ought to tell him what he is sensitive to, so that he can avoid taking this drug in the future. Those patients who have been alerted about them are best protected against drug eruptions or their serious consequences.

The physician who develops consciousness of drug eruptions will be of great help to his patients and will save himself a lot of grief.

All in all, we have not made too much progress in recent years in the management of allergic skin diseases. But we have a better knowledge of many underlying factors which makes treatment of these perplexing conditions a somewhat easier job.

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NATIONAL PROGRAM IN REHABILITATION MUST BE EXPANDED

FRANK H. KRUSEN, M.D.
Rochester, Minnesota

PHYSICAL MEDICINE and rehabilitation are combined today. The American Medical Association now has a Council on Physical Medicine and Rehabilitation. In 1949 it established a permanent Section on Physical Medicine and Rehabilitation. Furthermore there is now an American Board of Physical Medicine and Rehabilitation which qualifies physicians in this new medical specialty.

Physical medicine and rehabilitation includes the employment of physical therapy, occupational therapy, psychosocial adjustment and vocational retraining in an attempt to achieve maximal function and adjustment of the handicapped or disabled individual and to prepare him physically, mentally, socially and vocationally for the fullest possible life compatible with his abilities and disabilities.

There is extreme need for expansion of the national program in rehabilitation.

In 1949, a group of more than 800 medical and community leaders, meeting in Washington, concluded that, "To accomplish planned convalescence and rehabilitation for those partly disabled by chronic disease, we need increased understanding among physicians and others serving the chronically ill and aged of the possibilities and techniques of rehabilitation, and an increased number of trained rehabilitation, medical and supporting personnel."

They estimated that to staff an adequate system of rehabilitation facilities in this country it would be necessary to recruit and train 2,500 to 3,000 medical specialists and 10,000 to 12,000 more physical therapy and occupational therapy technical workers, as well as several times this number of additional non-medical rehabilitation personnel such as vocation rehabilitation counselors and social service workers.

They concluded further that "Each year about 250,000 men and women are so disabled by injury or disease that they become incapable of holding a job or of enjoying a normal life"; that "altogether there are many million handicapped people in the United States today"; and that "surveys have indicated that 1,500,000 of them—not including veterans disabled in service—would benefit greatly from rehabilitation services."

To provide services, teaching and research in rehabilitation for this enormous number of handicapped persons offers a tremendous challenge to our voluntary health agencies.

Our national leaders have urged extension of rehabilitation programs.

The number of civilian casualties far exceeds the number of war casualties. Some 265,000 men were permanently disabled as a result of combat injuries during World War II, but 1,250,000 civilians were permanently disabled by accidents alone in the corresponding four years.

"The investments in rehabilitation is an investment in the greatest and most valuable of our possessions, the conservation of human resources." This was the opinion of Bernard M. Baruch when he founded the Baruch Committee on Physical Medicine in 1944.

It has been my privilege to serve as chairman of the Baruch Committee on Physical Medicine and Rehabilitation and to aid in the establishment of research centers in physical medicine and rehabilitation and training programs for medical specialists in this field. In 1949, when I issued the report of the Baruch committee I was able to say that, "Although the full effect of the research and training of physicians will not be felt for some time, there have been immediate effects in the rehabilitation and medical care of thousands of disabled veterans and even more disabled civilians."

Our voluntary health agencies should provide leadership in rehabilitation.

It is the effective voluntary groups like the Baruch Committee, the American Red Cross, the National Foundation for Infantile Paralysis and the Minnesota Society for Crippled Children and Adults which are providing the inspired leadership in extending aid to the handicapped, unequaled in any other country.

More community rehabilitation services and centers are needed.

A subcommittee of the Baruch Committee pub-

From the Section on Physical Medicine and Rehabilitation, Mayo Clinic, Rochester, Minnesota.

lished a report in 1946 giving a basic blueprint of an ideal community rehabilitation service and center. In the ideal community rehabilitation center, envisioned by the committee, patients would be derived from a number of sources. The committee envisioned a traveling field clinic to provide rehabilitation service in rural areas. This field clinic could send certain patients to the rehabilitation center. Other sources of patients would be physicians, self-reference, social and governmental agencies, industry, labor and the civilian hospital.

The program of physical medicine should include physical therapy, occupational therapy and physical retraining for orthopedic, medical, neurologic and other types of patients. In the psychosocial program actual treatment and adjustment would be provided; and in the program of vocational education there would be provision for vocational guidance and testing, vocational retraining and special educational projects.

Also, the Baruch Committee envisioned the need for a laboratory of research in rehabilitation in conjunction with such a center. There should be a dormitory for patients who are unable to travel.

This type of rehabilitation center provides an active and living program which will combat any tendency toward chronic invalidism. All patients are guided toward self-sufficiency and independence—the more fortunate returned to full employment and those with limited disabilities to selective employment. The more seriously handicapped would be provided at least with the opportunity for self-support through the medium of the sheltered workshop, and the severely handicapped with a homebound program of activities which would help to make them self-sufficient.

Rehabilitation centers based on this plan of the Baruch Committee are beginning to spring up all over the United States. The St. Paul Rehabilitation Center is a link in this important chain. This is a major project of the Minnesota Society for Crippled Children and Adults which obtains its funds through its Easter Seal campaign. The St. Paul Junior League and the Wilder Charity also aid in financing the center. It is therefore a democratic institution which belongs to all of those who contribute to its support on a voluntary basis.

Let me stress here that voluntary health groups must continue to support and extend the national rehabilitation program to all types of disabled persons. Every American citizen should give both financial and moral support to this program and all of us should demand that voluntary health agencies continue their activities unhampered.

If our nation is to be successful in providing adequate facilities for restoration of all our disabled citizens we must double, redouble, and redouble again our pioneering, voluntary programs to provide service to the handicapped; train personnel to care for the disabled; and provide medical research in methods of restoration following disease or injury.

In every rehabilitation program it is imperative that the medical service be integrated with educational training and placement.

The physician must share in the responsibility of rehabilitation from beginning to end, but the responsibility should not be his alone. Many other specially trained persons and interested citizens must join the rehabilitation team.

It is my earnest hope that all who read this will fight for a continuation of the activities of our voluntary health agencies in offering improved rehabilitation services for the sick and disabled.

WORLD HEALTH ORGANIZATION SETTLES QUARANTINE COMPLAINTS

Acting as an International Tribunal in arbitrating disputes between governments on quarantine problems, the World Health Organization has dealt with 40 cases since 1949, WHO records show.

In addition, the WHO Expert Committee on Epidemiology and Quarantine, meeting in Geneva, recently heard and settled two other complaints.

The international disputes arise, WHO has explained, from restrictions that may be imposed by governments on travelers or merchandise, sometimes in excess of the provisions of the various International Sanitary Conventions now in force.

WHO has undertaken the task of unifying and replacing these conflicting conventions by a single set of International Sanitary Regulations which will ensure maximum safety with minimum hindrance to trade and travel.

The new regulations will be submitted to the World Health Assembly (WHO's legislative body) in May, 1951, and will enter into force six months after being approved.

"PAINLESS" MYOCARDIAL INFARCTION

HOMER R. WARNER, M.D.
Minneapolis, Minnesota

TO WILLIAM HEBERDEN[4] should go the credit for recognition of the symptoms of disease of the coronary arteries. In 1818 he wrote:

> "They who are afflicted with it are seized while they are walking (more especially if it be up hill and soon after eating) with a painful and most disagreeable sensation of the breast, which seems as though it would extinguish life if it were to increase or continue; but the moment they stand still, all this uneasiness vanishes. The pain is sometimes situated in the upper part, sometimes in the middle, and sometimes at the bottom of the os sterni, and often more inclined to the left than to the right side. It likewise very frequently extends from the breast to the left arm."

Although 132 years have passed since this was written, this characteristic pain is still the most important and often the only clue one has to the presence of coronary artery disease and the threat of sudden death that it carries.

It wasn't, however, until twenty years ago that our present concept of the mechanism of pain in coronary disease was placed on a sound basis by the work of Keefer and Resnik.[5] This was called the anoxemia theory. Painless myocardial infarction had been described prior to this time, and these authors proposed the following as an explanation: Pain can be absent in myocardial infarction either because the subject is relatively insensitive to pain or because the infarction occurs so slowly, only a few fibers being injured at a time, that the resulting sensation is insufficient to reach the level of consciousness.

The frequency with which painless myocardial infarction occurs varies considerably if one is to believe all that is written on the subject in recent years in medical literature. Boyd and Werblow,[2] in 1937, reported one-third of 125 consecutive cases of "coronary thrombosis" occurred without pain. (This paper was typical of many in which a careful distinction between coronary thrombosis and myocardial infarction was not made, the terms being frequently used interchangeably.) In marked contrast to this, was Kennedy's series of 200 autopsied cases of myocardial infarction from the records of the Peter Bent Brigham Hospital.[6] One hundred forty-two were classified as recent, and forty-eight of this group were discarded because an adequate history was not obtained at the time of the infarct. Of the ninety-four remaining, 92 per cent had definite pain, 4 per cent had discomfort only (usually a pressure sensation), and 4 per cent had no pain or discomfort.

A recent report by Behrmann, Hipp, and Heyer[1] supports the conclusion of Kennedy that painless myocardial infarction is relatively rare except under circumstances in which the reason for failure to elicit a history of pain is quite obvious.

A review of 200 consecutive cases of recent myocardial infarction seen from July 1, 1947 to July 1, 1950, at the Minneapolis Veterans Administration Hospital has been carried out with special effort to study the type of pain and the circumstances under which no history of pain at the time of infarction could be elicited.

Many of the patients were not admitted until several weeks after symptoms began. Despite this, an accurate description of the pain could still be elicited as the experience was indelibly impressed on the patient's consciousness in most instances. Included in the study were all cases in which a diagnosis of recent myocardial infarction was established either at autopsy or beyond reasonable doubt by serial electrocardiograms and other clinical criteria. The age distribution is shown in Table I.

TABLE I

Age	*Cases*	*Per Cent*
Under 35	5	2.5
36 to 45	16	8.0
46 to 55	80	40.0
56 to 65	80	40.0
66 to 75	17	8.5
Over 76	2	1.0

Of the 200 cases, 184 (92 per cent) had typical angina, usually described as "crushing," "pressing," "burning," or "severe aching" substernal or precordial pain. The adjective "sharp" was seldom used. In 120 cases, the pain radiated to one

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From the Department of Internal Medicine, University of Minnesota School of Medicine, and the Veterans Hospital, Minneapolis, Minnesota.

Sponsored by the VA and published with the approval of the Chief Medical Director. The statements and conclusions published are the results of his own study and do not necessarily reflect the opinion or policy of the Veterans Administration.

or both arms or into the neck, and in the rest of this group no radiation was described. Radiation into the lower extremities was not encountered.

In nine cases the pain was not typical, but in all of these but one, the symptoms were suggestive enough of myocardial infarction that the diagnosis was suspected immediately by the admitting physician. The exception was a man with substernal pain which was described as being made worse by his lying on his back, and a mistaken diagnosis of hiatus hernia was made in the admitting room. Others of this "atypical" pain group are listed below:

- "numbness of the left hand accompanied by weakness and dizziness"
- "severe indigestion and shortness of breath"
- "severe sense of fullness in the epigastrium with shortness of breath"
- "aching in the throat with radiation down the left arm"
- "severe pain in the left arm radiating down the forearm"
- "left chest pain described as pleuritic associated with epigastric pressure and vomiting"
- "soreness in the left chest on the day after pneumothorax was initiated"

In the remaining seven cases, there was no mention of pain at the time of the infarct in the admission history. The reason for "no pain" in each of these instances becomes obvious with inspection of Table II in which they are summarized.

TABLE II

Comatose	1
Moribund	1
Under anesthesia	1
Aphasic	3
In shock	1
Total	7

Comment

Of course, it cannot be concluded from this series that acute myocardial infarction is never painless in an otherwise healthy individual. One, however, can safely say that it must be quite an unusual occurrence; so unusual in fact, that one need not think too seriously of myocardial infarction in a patient who develops congestive heart failure or an arrhythmia, for instance, unless a history of pain or a suggestive pain equivalent can be elicited. This is obviously not true, however, under circumstances in which pain either could not be appreciated (comatose, under anesthesia, et cetera), or could not be expressed (aphasic) by the patient.

That old myocardial infacts are found at autopsy in patients in whose record no pain has ever been described, is a well-known fact and not at all uncommon. This is best explained by the two factors mentioned by Keefer and Resnik in the report already referred to; namely, the rate with which the infarction takes place, and the patient's threshold for pain. To have an infarct of sufficient size to be recognized clinically occur without exceeding the threshold of pain must be quite rare, unless that threshold has been markedly elevated through the effect of some co-existing pathological state. In this series it did not occur.

Summary

1. Two hundred cases of recent myocardial infarction seen at the Minneapolis Veterans Administration Hospital were reviewed with special reference to the type of pain described when present and the circumstances under which no mention of pain was found in the record.

2. Of these, 92 per cent had classical angina.

3. 4.5 per cent had unusual pain, but still suggestive enough of angina to make myocardial infarction the admitting diagnosis in all but one case.

4. 3.5 per cent of the records contained no mention of pain at the time of infarct, but in all of these instances the failure to elicit a history of pain could be easily accounted for by an associated pathological condition which either elevated the patient's pain threshold or rendered him incapable of manifesting the pain had it existed, or both.

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THE PHARMACO-DYNAMIC TREATMENT OF PSYCHONEUROSES BY USE OF CARBON DIOXIDE INHALATIONS

Preliminary Report

C. W. BAARS, M.D.
Minneapolis, Minnesota

IN 1929, Loevenhart et al reported increases in psychic function in various psychotic patients, associated with inhalations of mixtures of carbon dioxide in oxygen. L. J. Meduna of the Illinois Neuropsychiatric Institute at Chicago applied this procedure, though with modified technique, to psychoneurotic and psychosomatic problems.

Meduna conceives of psychoses as disturbances of cortical functions, i.e., of the higher associative functions. The psychoneuroses he considers as disturbances of lower structures of the brain which upset or distort the emotional values of ideas and concepts. He feels that the basic difference between a psychoneurotic and a normal person lies in a "disproportion between excitement and excitability." Because of this disproportion the afflicted individual will develop a low threshold to subnormal stimulation or an unduly strong reaction to normal stimulation.

Anesthesia may be induced through repeated inhalations of carbon dioxide. When given in a mixture of 30 per cent carbon dioxide and 70 per cent oxygen, the former goes into a simple solution in the plasma, while the oxygen, having passed the capillary barrier immediately, gets in a chemical linkage with the hemoglobin. By blocking the utilization of oxygen the carbon dioxide produces a rapidly reversible acidosis (Gibbs et al). The threshold of stimulation of every single nerve cell is increased by the carbon dioxide in direct proportion to the logarithm of the concentration of the carbon dioxide inside and outside the cell membrane. Windle et al showed that the carbon dioxide produces certain unexplained changes in the brain cells which make them stain darker than normal.

Equipment.—The mixture of 30 per cent carbon dioxide and 70 per cent oxygen—obtained in tanks, ready mixed—reaches the patient via a reducing valve and an inhalation mask with a central inhaling-exhaling valve. The reducing valve is equipped with two pressure gauges, one showing the pressure inside of the tank, the other indicating the pressure—in pounds per square inch—actually conveyed to the patient. It is important that the valve between mask and bag is an inhaling-exhaling one, as it prevents the patient from rebreathing into the bag.

Procedure.—During the treatment the patient lies on a bed or treatment table. The assistance of a nurse is not essential. The number of respirations taken by the patient is counted out in a loud tone in order that the patient can hear and remember the last count and so indicate at the end of the treatment the onset of the full anesthesia. At the first treatment it is advisable to give only 20 to 25 respirations. Onset of anesthesia is usually reached after from 10 to 15 respirations, but if consciousness is not lost at the end of the treatment, the number of respirations may be gradually increased during the following sessions.

Depending on the depth of the anesthesia, restoration of consciousness after removal of the mask takes approximately one or two minutes. There are no after-effects to interfere with the patient's immediate dismissal from hospital or office other than a momentary dizziness and occasional "numbness" of the legs.

Preparation of the Patient.—A thorough physical examination should be made with special attention to the respiratory and cardiovascular systems, as active pulmonary tuberculosis, hypertension and organic heart disease are contraindications to this treatment.

Restriction of meals is unnecessary as nausea or vomiting do not occur. Clothing does not have to be removed as there is little or no danger of incontinence. There is no danger of tongue biting, fractures or dislocations.

The patient is given a simple explanation of the nature of his "nervous" trouble and of the nature of the treatment itself. A timid or fearful patient may need reassurance as to the safety of

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From the Division of Psychiatry, Minneapolis General Hospital, and University of Minnesota Medical School.

the treatment. He is advised to breathe slowly and deeply. In case of panting or rapid breathing, the mask should be removed and the patient instructed again as to the proper respirations. The patient is instructed that he may experience certain dreams, emotions, thoughts or memories or only a dreamless sleep, and he is encouraged to tell all he remembers upon awakening.

In the reported cases every effort was made to avoid any suggestions that might interfere with the objective evaluation of the procedure. For instance, the usual question, "Will this treatment help me, doctor?" was answered with the statement that it was only an experiment and that the result might or might not be gratifying.

Physiological Reactions.—with increasing respirations one distinguishes a definite pattern of reactions in the order mentioned:

1. Subcortical excitation, with increase in respiratory rate, heart rate and blood pressure. Pupils and facial capillaries dilate and perspiration appears. This phase lasts from 6 to 12 respirations.

2. Cortical inhibition (narcosis).

3. Psychomotor and psychosensory excitation, mainly composed of emotional discharges and depending on the patient's personality characteristics.

4. Symptoms of extrapyramidal stimulation, usually appearing around or beyond the thirtieth respiration. Frequently seen are tremors, tetanoid spasms of the hands and fingers, athetoid movements and sometimes Babinsky signs.

5. Signs of decerebrate rigidity. This phase may be reached after 60 to 90 or more respirations and is not observed in ordinary therapeutic sessions.

Number and Duration of Treatments.—Treatments may be given as often as once daily, depending on time available and the need of the patient. Each treatment takes about five or six minutes, including interpersonal orientation before and after administration of the gas.

Improvement may be observed after as few as twenty or as many as 150 treatments. If none is seen after about twenty-five treatments, there is usually little hope of improving the clinical picture by further treatments. The number of respirations during each session will be determined by the degree of response. If no subjective change is reported by the patient, the number of respirations is increased by five for three or four treatments. This may be repeated several times if necessary. The adequate degree of saturation with carbon dioxide can be established usually in about ten to fifteen treatments.

Mode of Action.—Usually four patterns of response may be distinguished:

1. Gradual diminution and disappearance of symptoms without much observable mental reaction.

2. Direct abreaction, with reliving of the pathogenic experiences and discharge of the general and focal tension symptoms.

3. Indirect abreaction, by recalling of a dream with symbolic meaning and which can be analyzed.

4. Spontaneous analysis of forgotten or repressed material, recollected between dreams. Without emotional discharge during the treatments and without dreams, the patient discovers the causal relation of his pathogenic experiences to the actual symptoms.

Indications.—Though the treatment reportedly is ineffective in the obsessive-compulsive neuroses, and gives only transient relief of some psychotic features, good results may be expected in the presence of various psychoneurotic symptoms, expressing either focal tension (spastic colitis, stammering, et cetera) or general tension (anxiety, irritability, et cetera).

Meduna also reports satisfactory results in passive homosexuality and alcoholism.

This treatment was given to twelve patients in the Out-Patient Department of Minneapolis General Hospital. For practical reasons the treatments were limited to three times a week (except Case 4). Five patients refused further treatments after from one to five sessions. Four of them gave as reason that they felt like dying or had other frightening experiences. One gave no reason at all. Two other patients received the treatments at very irregular intervals and showed little or no improvement.

Five patients showed different degrees of improvement.

Case Reports

Case 1.—A twenty-seven-year-old, white, single woman, since January, 1949, had experienced fear, tension, dizzy spells and hostility towards her mother. Clinical impression corresponded with the Rorschach test done in

March, 1949, which indicated a fairly severe anxiety neurosis with some overlay of depression. She received six EST in May, 1949, and showed some improvement. In October, 1949, the symptoms of anxiety returned. She then received a total of forty-six treatments of carbon dioxide inhalations. Anesthesia was usually induced after from 6 to 10 respirations. She usually experienced the same dream in which she saw a big city with many people and much commotion. She began to show subjective improvement with the thirteenth treatment. Her symptoms disappeared gradually during the subsequent weeks. However, at about the thirtieth treatment she felt like slipping back into her previous state. The total number of respirations then was increased to 50, and she again improved rapidly. The Rorschach and Thematic Apperception tests were repeated at the end of the treatments and indicated that she was much less concerned over her unhappiness in the past while her problems did not seem quite as important to her as before. In a letter she wrote me afterwards, she stated: ". . . I feel that the treatments have helped me a lot; I feel more like a person that belongs in this world just like anyone else, but there are still things I don't understand."

Case 2.—A twenty-nine-year-old, single, Mexican woman suffered from phobias, crying spells, guilt-feelings, dizziness, tachycardia, insomnia, et cetera, of at least six months' duration. The clinical impression was that she was suffering from an anxiety neurosis with hysterical features. The Rorschach test indicated adjustment on a rather immature egocentric level, lack of poise and inner security, tendency to be rigid in her thinking, being more of an introvert than an extrovert. She received a total of forty-five treatments. Anesthesia was usually reached between 10 to 20 respirations. Perhaps because of her restricted command of the English language she was never able to tell the contents of her dreams. She began to show definite improvement following the nineteenth treatment, and had no complaints between the twenty-fifth and thirtieth treatments. From there on there was a gradual return of some of her neurotic symptoms, which, however, disappeared again when the number of respirations was stepped up to 50. A repeat Rorschach test at the termination of the treatments still suggested anxiety and hysteria, but she appeared to have more tact in dealing with others, she was more logical in approaching her problems, and she was more extroverted than formerly. Clinically she appeared much improved, her shyness had disappeared, she would look at people when talking to them, she seemed to have more poise and confidence, and her symptoms of anxiety were much less prominent.

Case 3.—A twenty-five-year-old, white, single man had numerous neurotic complaints most of his life. Our clinical impression was anxiety neurosis with early schizoid features. The Rorschach test indicated immaturity with very poor inner control, introspectiveness, anxiety, conflict, tension and marked emotional instability; conclusion: severe maladjustment with prominent signs of hysteria and anxiety. He received a total of twenty-six treatments. Anesthesia was reached only on a very few occasions, in spite of the fact that his respirations were always deep and slow and at times numbered as many as 55. He usually saw colored lights evolving in complicated geometric patterns. Notwithstanding the unexplained absence of anesthesia, the repeat Rorschach test indicated considerable change—the immaturity was much less prominent, he appeared to have much better intellectual control, he was less overly sensitive, he tended to hold back his emotions more without, however, being too rigid. He also seemed to have developed insight into his condition.

Case 4.—A twenty-five-year-old, white, single man was admitted to the hospital with a severe acute anxiety hysteria. Personality study revealed prominent schizoid features. There was a history of epilepsy since childhood. He showed marked improvement with two treatments daily for the first three days and a total of nine treatments within one week. He was readmitted to the hospital several weeks later presenting clinical features of a schizophrenic psychosis, but without symptoms of hysteria or anxiety.

Case 5.—A thirty-four-year-old, white, married man was diagnosed as a depressive reaction in a passive aggressive person with schizoid trends. Due to circumstances the number of treatments had to be limited to twelve. By then he indicated that his depressive features had diminished; he felt more relaxed. He was most impressed with the fact that he had not experienced any craving for alcohol, though he had been a heavy drinker for at least seventeen years. He felt that the treatments were responsible for this.

Judging by the results of these few cases, I feel that the treatment of psychoneuroses by use of inhalations of carbon dioxide deserves a wider experimental trial. It appears that though this treatment may not be able to cure the neuroses, at least it will diminish the morbid emotional response to environmental or other stimuli and favorably influence pathologic reaction patterns, so that additional psychotherapy will be easier and more successful. As this treatment is inexpensive, consumes very little time on the part of the patient as well as on the part of the physician, and is free from any danger, it may be considered as a valuable addition to our therapeutic armamentarium.

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TORSION OF THE PEDICLE OF OVARIAN CYSTS

DOUGLAS L. JOHNSON, M.D.
Little Falls, Minnesota

TWISTED ovarian cyst pedicle is a condition which is historically quite common. However, the average practitioner encounters it but a few times during a lifetime of practice.

Testbooks state that torsion is the most important complication of ovarian tumors and that it occurs in 10 to 20 per cent of the cases. Although percentage-wise these figures may be correct, the fact that only five cases were found in the past ten-year period in St. Gabriel's Hospital, a 100-bed general hospital, indicates that its occurence is infrequent. During this same period, the number of major surgical operations of all types was 3,146. Thus, torsion of the pedicle of an ovarian cyst has occurred about every two years in a hospital that averages one major surgical operation daily.

The cause of twisting of the pedicle of an ovarian tumor is not often determined. Since it is a mechanical process, however, there are several mechanical factors involved. First of all the tumor or cyst must be freely movable in order to twist. Typically, this would involve dermoid cysts, fibromas and cystomas. Those tumors which are usually adherent, and therefore not involving a torsion process, are corpus luteum cysts and endometrial or chocolate cysts. Also, an extremely large mass would not be prone to twist, although the cyst may vary from golf ball size to 8 or 10 inches in diameter.

According to some writers, this complication is said to follow some unusual exertion, severe trauma, or a pregnancy that results in increased length of the pedicle. This last factor seems to be recognized as a definite causative agent by several authors.

The symptom complex of twisting of the pedicle of an ovarian cyst, reduced to its simplest terms, consists of an abdominal pain followed by a slowly developing peritonitis. There are of course many variations, depending on the stage of the condition that has been reached.

There is frequently a history of recurrent abdominal pain extending over a period of several weeks or months. These attacks, which are not persistent, are interpreted as slight torsions that correct themselves. In a series of 120 cases reported in England, 119 gave a history of pain previous to the severe attack.

The patient who appears for treatment usually complains of an abdominal pain that may or may not have had a sudden onset. There usually is nausea and vomiting. Usually, if seen early, there will be little or no temperature elevation or leukocytosis. Examination of the abdomen usually reveals a pelvic mass, although bimanual examination may be necessary to reveal it. There is usually acute tenderness over the mass itself, and often over the entire lower abdomen. As the disease progresses, abdominal rigidity, elevated temperature and increased white blood cell count develop.

The symptomatology also varies according to the speed with which torsion occurs, and also with the amount of twisting. The degree of rotation may vary from a few degrees to more than 360 degrees. In one of the cases to be reported later it will be noted that the tumor had rotated fully three complete turns.

The sudden rotation produces an unbearable pain accompanied by other prostrating symptoms and severe shock. The more slowly developing attack may have recurrent pain over a period of a few days, gradually becoming more severe. The severity of the symptoms also increases with the amount of torsion. Usually in an acute rotation there will be some uterine bleeding.

In considering the differential diagnosis, appendicitis looms as the chief possibility. The absence of a mass is probably the chief means of differentiation. Also to be considered are ruptured tubal pregnancy, ruptured ovarian cyst, ureteral stone and strangulated hernia. In each case, careful examination will probably eliminate these other conditions. However, in some cases the diagnosis may not be made until the abdomen is opened.

The pathological effect of the twisting process depends upon the amount of vascular changes created. Partial vascular occlusion with gradual torsion may cause only venous congestion. As the process continues and thrombosis of the

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Presented at staff meeting of St. Gabriel's Hospital, Little Falls, Minnesota.

veins occurs, the same effects are produced as in a more rapid process. Reaching the advanced stages, this produces gangrene of the ovary, the cyst and usually the tube. The mass appears dark purple or black. Peritoneal irritation may be evident. The thrombosis may extend proximally up along the ovarian pedicle with a predisposition toward postoperative embolism. The treatment of such a pathological process is surgical as soon as the diagnosis can be established. If the diagnosis cannot be immediately made, a period of observation does not significantly increase the risk to the patient. This period will often permit the observer to see the picture develop over a period of a few hours to the point where the diagnosis is definite.

Removal of the cyst usually means the removal of the ovary and tube, since they are usually both involved in the twisting process. The technique of removal consists of double clamping and ligating with peritonealization of the exposed surfaces. Results of surgery are usually excellent, although the operative risk is increased over that of removal of a simple cyst or tumor.

There is some variation of opinion as to whether or not the pedicle should be untwisted before removal. One English surgeon untwists the pedicle and hot packs the cyst. If normal color returns to the ovary and tube, he preserves these structures. A French surgeon untwists the pedicle only when necessary for exteriorization. He maintains that ligation and cutting without untwisting will result in a lower rate of postoperative emboli.

The five following cases illustrate the diagnostic points and some of the errors that may be made in diagnosis.

Case Reports

Case 1.—This twenty-eight-year-old patient was admitted to the hospital November 9, complaining of pain in the lower left abdomen, vomiting, and anorexia. She stated that she had been well until four days prior to admittance, when she was seized with severe abdominal pain, which persisted for two days, but occasionally disappeared entirely. Severe pain returned during sleep the night before admittance. Improvement occurred during the afternoon of the day of admittance. Recurrence of the pain brought her to the hospital during the evening.

The past history revealed that she had had four normal pregnancies. Her youngest child was fourteen months old. An appendectomy had been performed seventeen years previously. Menstrual periods were normal. An episode similar to the present one but milder and lasting three days had occurrd six months previously.

Examination revealed a moderately obese woman, appearing uncomfortable, lying with the legs drawn up, pulse 120, and blood pressure 140/80. A lower abdominal mass was present in the mid-line extending up to the umbilicus or about the size of a six months' pregnancy. It was freely movable and tender. There was also tenderness in the left lower quadrant. Pelvic examination revealed an acute tender mass the size of a five months' pregnancy, somewhat fluctuant, lying mainly to the left of the mid-line.

Diagnostic possibilities considered on admission were: (1) pregnancy with threatened miscarriage, (2) bowel obstruction, (3) left ovarian cyst with torsion of the pedicle.

The white cell count on admittance was 15,500. X-ray examination showed a soft tissue mass probably an ovarian tumor. The temperature was normal on admittance, 99 degrees the following morning, and by that evening had risen to 101.4 degrees. At this time the abdomen was more tender and muscle spasm was appearing. She was taken to the operating room with the diagnosis of ovarian cyst with torsion of the pedicle. It will be noted that this patient presented the typical picture of a pelvic mass and a slowly developing peritonitis.

A large ovarian cyst involving the entire left ovary was found. The pedicle had twisted through an entire 360 degree circle three times. After removal, the tumor measured 5 by 9 inches and weighed 4 pounds and 13 ounces. The walls were thickened by hemorrhage. The postoperative course was uneventful.

Case 2.—This thirty-one-year-old patient was admitted to the hospital January 7, complaining of lower abdominal pain recurring intermittently for a week. On the day of admittance, she had severe abdominal pain starting in the right side with a sudden onset. There was a pregnancy of two months' duration existing.

The patient had pain and tenderness over McBurney's point and right rectus rigidity was elicited. Pelvic examination was not done. Temperature on admission was 100 degrees, white cell count 19,600. Preoperative diagnosis of acute appendicitis or possibly ectopic pregnancy was made.

The patient went to the operating room immediately. The appendix appeared to be normal. Examination of the pelvis revealed a mass of gangrenous tissue in the region of the right tube with a retro-uterine mass about 3 or 4 inches in diameter lying deep in the pelvis. The pedicle was twisted 720 degrees. The tube and ovary were removed with the cyst.

The patient recovered uneventfully and was delivered normally at full term. Pelvic examination might have established the diagnosis preoperatively insofar as the mass was not palpable abdominally.

Case 3.—This patient, forty-six years of age, was admitted to the hospital November 4, having had severe pain in the right lower quadrant of six hours' duration, with nausea, vomiting and a feeling of faintness. There was no history of previous pain. The patient appeared pale and sick and was in great pain. Pulse was 90, blood pressure 102/80.

Examination of the abdomen revealed tenderness deep in the right lower quadrant with some rebound tenderness. White blood cell count was 11,400.

Diagnosis of ovarian cyst with possible torsion was made. The patient was taken to the operating room immediately and a large hemorrhagic cyst was removed. It was filled with blood and was becoming gangrenous. The cyst had twisted one and one-half times on its pedicle. Recovery was complete and uneventful. This patient presented the shock picture of rapid torsion.

Case 4.—This thirty-year-old patient was admitted to the hospital February 21, 1945, with a history of pain in the right lower quadrant starting ten days prior to admittance. This pain had a sudden onset and required repeated use of opiates for relief. The pain had been more or less constant for ten days but was not as severe as when she was admitted. The last menstrual period was January 16. Two days prior to admittance she had severe rectal pain during defecation. On admittance the temperature was 100 degrees, pulse 94. Pelvic examination revealed a hard, tender mass in the left lower quadrant. The uterus was firm and extremely painful to touch. The Friedman test was strongly positive. The white blood cell count was 10,000. A preoperative diagnosis of possible ectopic pregnancy or ovarian cyst was made.

The patient was taken to the operating room, and a large hemorrhagic mass involving the right tube and ovary was found in the cul-de-sac on the right. There were numerous adhesions. The gangrenous mass was not identifiable. However, the opinion of the pathologist was that there was no placental tissue in the mass, and that the diagnosis was a twisted ovarian cyst.

The postoperative course was uneventful. The patient was delivered of a full term infant the following October.

Case 5.—This patient, aged forty-one, was admitted to the hospital on January 9, 1950. She was delivered of a 4-pound, 3-ounce infant spontaneously at 7:00 a.m. on January 10. Twenty-four hours postpartum she developed a distended upper abdomen with repeated emesis of black material. Her pulse rate increased to 160, blood pressure fell to 105/60, white blood cell count 13,000. She had marked sweating, pallor, gray facies, anxious expression and appeared to be in pain. The patient had a temperature of 102 degrees. Pain had a sudden onset.

Diagnosis of bowel obstruction was made, and the possibility of some existing peritonitis was considered. The condition was thought not to be purely a complication of her delivery. Twenty-four hours later, after decompression of the bowel, the patient's general condition seemed to be improved. The white blood cell count dropped in twenty-four hours from 13,000 to 8,600. It was determined, however, that operative interference was necessary to relieve the intestinal obstruction.

At operation a large ovarian cyst with a twisted pedicle was found on the right side. Adhesions from this mass obstructed the ileum about 6 inches from the ileocecal valve. The cyst contained bloody fluid. The right tube was included in the mass that was removed. Recovery was uneventful.

Summary

Five cases have been presented to illustrate the point that in a woman lower abdominal pain with gradually increasing peritonitis and a pelvic mass probably indicate torsion of the pedicle of an ovarian cyst.

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NURSING NEEDS INCREASE

Nursing needs have increased in spite of lower death rates, longer life expectancies, and a generally healthier population. The number of people in the United States has increased by an estimated 16,000,000 since the 1940 census. More people are now living to an older age than ever before, and consequently the diseases and disabilities of older people have multiplied. A high standard of living has prevailed since the early years of the war, medical prepayment plans have spread, and public health services have been expanded in many areas. In 1940, 10,087,000 patients were admitted to hospitals in the United States, but by 1948 the number of hospital admissions had risen to 16,422,000.—Pub. Health Reports, August 5, 1949.

LOW-BACK AND SCIATIC PAIN

The Importance of Intraspinal Investigation

HENDRIK J. SVIEN, M.D., and HENRY W. DODGE, JR., M.D.
Rochester, Minnesota

THE RÔLE of protruded lumbar intervertebral disk in the production of low-back and sciatic pain has been emphasized frequently in the literature of the past few years. However, it is well to be reminded periodically that there are numerous causes of low-back and sciatic pain. These can be classified, in general, as follows:

1. Infectious causes: syphilis, typhoid and tuberculous spondylitis, fibrositis, myositis, certain forms of arthritis, herpes zoster, and so forth.
2. Metabolic causes: diabetes, gout, osteoporosis, and so forth.
3. Structural or skeletal causes: congenital deformities such as spina bifida, sacralization of lumbar vertebrae, spondylolisthesis, spondylolysis and similar lesions, hypertrophic changes, and traumatic skeletal lesions.
4. "Peripheral" causes: pelvic tumors, lesions of the hip joint and femur, vascular disorders, and so forth.
5. Diseases of the spinal cord: sclerosis, myelitis.
6. Intraspinal tumors: primary tumors of vertebrae, primary tumors of the spinal cord and its envelopes, and metastatic tumors.
7. Protruded lumbar intervertebral disks.

By means of a carefully elicited history, a thorough physical neurologic and orthopedic examination, and pertinent roentgen-ray survey and laboratory tests, one can generally relegate the case of low-back and sciatic pain under consideration to its proper category. If infectious and metabolic disorders can be ruled out, if skeletal and peripheral causes can be shown to be absent, and if neurologic evidence of disease or tumor of the spinal cord is not present, one logically places the lesion under investigation in the category of protruded lumbar intervertebral disk.

If the patient is suspected of having an "atypical" protruded disk, he will usually be subjected, in addition to the routine study, to further investigation, which will consist of intraspinal studies. These will include spinal puncture with manometric studies, analysis of the spinal fluid and contrast myelography with either air or oil. If oil (pantapaque or lipiodol) is used, the spinal subarachnoid space is examined as high up as the level of the seventh or eighth thoracic vertebra. By these means, the presence or absence of protruded disk can be determined with a high degree of accuracy.

However, if the patient is considered to present the classic or typical syndrome of protruded lumbar intervertebral disk, he may be operated on directly, without intraspinal investigation. Herein lies a serious pitfall concerning which words of warning can justifiably be said. It is not an unusual experience to see a patient who initially presented a "typical" syndrome of protruded disk and who was operated on directly without relief of his pain, but who, on subsequent intraspinal investigation and operation, was found to have a tumor of the spinal cord.

In a recent review of 1,296 consecutive cases of intraspinal operation from the level of the tenth thoracic vertebra down, it was noted that 1,242 operations were carried out for removal of protruded disks, fifty-one operations were done for removal of spinal cord tumors, and in three cases localized arachnoiditis was found. Due to the disparity in length between the spinal cord and the skeletal axis, some of the nerves which comprise the sciatic nerve leave the spinal cord as high as the level of the tenth or eleventh thoracic vertebra. Involvement of these nerves in the spinal canal anywhere between their point of origin and their exit through their respective intervertebral foramina may give rise to low-back and sciatic pain.

Of the fifty-one tumors of the spinal cord in this series, twenty-four were evident on the initial examination. However, in the remaining twenty-seven instances, the working diagnosis, after the initial history and the general, neurologic, orthopedic and roentgen-ray examinations, was "protruded lumbar intervertebral disk suspect." In all twenty-seven instances, neurologic findings were minimal or absent and roentgenologic sur-

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Dr. Svien is in The Section on Neurologic Surgery, Mayo Clinic, and Dr. Dodge is a Fellow in Neurosurgery, Mayo Foundation, Rochester, Minnesota.

vey showed only a narrowed interspace, slight scoliosis or hypertrophic changes in some cases. Fifteen of the twenty-seven tumors were situated above the level of the fourth lumbar interspace and would have been missed if only direct exploration of the fourth and fifth lumbar interspaces had been carried out. Also, it is likely that many of the remaining twelve tumors which were situated at or below the level of the fourth lumbar interspace would have been missed if only direct exploration of the fourth and fifth lumbar interspaces were carried out, inasmuch as many of these tumors were intradural and presented no extradural manifestation. Furthermore, many of these tumors which masqueraded as protruded disks were of the type which, if removed early before irreparable damage to the spinal cord and cauda equina had taken place, could be removed completely without neurologic residua.

We have so frequently been impressed with the importance of intraspinal investigation that we employ it in every case in which a protruded disk is suspected, no matter how classic is the case. It is only in this way that spinal cord tumors which mimic faithfully the syndrome of the protruded disk can be identified for what they are. Because tumors situated as high as the level of the tenth thoracic vertebra can produce signs and symptoms indistinguishable from those of the so-called typical protruded lumbar intervertebral disk, it is necessary to examine the spinal subarachnoid space, at the time of myelography, up to the level of the eighth or ninth thoracic vertebra.

SIGNIFICANCE AND MANAGEMENT OF SPONTANEOUS PNEUMOTHORAX

(Continued from Page 34)

feet the volume of air in a given space will double. This may be sufficient to produce severe respiratory embarrassment in an individual carrying a degree of pneumothorax or air in emphysematous bullae which is not disabling at sea level. One of our patients, an Army Reserve fighter pilot, developed a pneumothorax which he carried for several days without seeking benefit of medical advice. On the third day, while waiting in the ready room at the air field preparatory to taking up a single seater fighter plane, he fortunately collapsed and was taken to the hospital where x-rays revealed an extensive pneumothorax. Had the pilot been able to hold out long enough to get his plane to 8,000 or 10,000 feet he would very likely have been the victim of an unexplained plane crash.

In the differential diagnosis the lesion most easily confused with spontaneous pneumothorax is a giant bullous emphysema. These lesions produce the so-called vanishing lung and are seen both in infants and adults. Usually careful examination of the x-ray will reveal other cystic areas as well as a ring of compressed atelectatic lung about the giant bullae. It is important to make the proper diagnosis since aspiration of these giant bullae is indicated only as a life-saving procedure. When the blebs are aspirated and the needle removed, the puncture wound of the bleb will invariably leak air into the pleural space causing a tension pneumothorax.

An example of a giant bullous emphysema from the service of Dr. T. J. Kinsella is shown in Figures 9 and 10 (Case 6).

The author wishes to express his appreciation to Dr. T. J. Kinsella for permission to use Cases 4 and 6 from his St. Mary's Hospital Service.

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History of Medicine In Minnesota

MEDICINE AND ITS PRACTITIONERS IN OLMSTED COUNTY PRIOR TO 1900

NORA H. GUTHREY
Rochester, Minnesota

(Continued from the December Issue)

Arthur Foote Kilbourne (1858-1934) was from 1889 until his death medical superintendent and administrator of the Second Minnesota Hospital for Insane (Rochester State Hospital), an honored citizen of Olmsted County and the state.

Descended from colonists who settled at Weatherford, Connecticut, in 1636, Arthur Foote Kilbourne was born at Keokuk, Iowa, on January 5, 1858, the son of Edward Kilbourne and Caroline Amelia Foote Kilbourne, both of whom were natives of Connecticut. The other children of the family were three sisters, Louise B. Kilbourne, Carrie Kilbourne (Kellogg), and Mary Kilbourne (Lyon), and two brothers, Henry W. and Alfred L. Kilbourne.

After receiving his preliminary education in the public schools of Keokuk and reading medicine with Dr. MacDonald, of Keokuk, Arthur F. Kilbourne went east in 1880 to matriculate in the medical department of the University of the City of New York. He was graduated in 1883 with the degree of doctor of medicine and entered at once on a service of nearly two years as an assistant physician at the New York City Hospital for Insane, under Dr. A. E. MacDonald, "the czar of Ward's Island." Late in 1884 he came to St. Peter, Minnesota, as second assistant physician at the Minnesota Hospital for Insane.

During his four years in St. Peter Dr. Kilbourne was an able member of the hospital staff and a member and once an officer of the Nicollet County Medical Society. He was married in St. Peter on October 9, 1888, to Miss Ella Donahower, daughter of Mr. and Mrs. F. A. Donahower of that city.

When, in 1889, an investigation was made of the administration of the Second Minnesota Hospital for Insane at Rochester, changes in staff were made and Dr. Kilbourne, on June 6, was appointed acting superintendent of the hospital. Early in November, on the resignation of Dr. J. E. Bowers *(q.v.)*, Dr. Kilbourne became superintendent; he was the second superintendent of the institution, the seventh appointee to the medical staff.

Able, ethical, progressive, loyal to his profession and unfailingly kind to and in sympathy with patients and associates, for forty-five years, until his death, he worked to bring the hospital, well begun in 1879, to its splendid development. His constant effort was toward the benefit of the patients, in scientific treatment and in comfortable and beautiful surroundings. Even his favorite personal hobby, the raising of superior flocks of purebred White Leghorn poultry, was made part of the common good. In 1889 he sponsored at the hospital a training school for attendants and a training school for nurses, the latter of which long functioned successfully under the management of Dr. R. McE. Phelps, Assistant Superintendent. Dr. Kilbourne was one of the first psychiatrists and hospital executives, in the nineties, to maintain that existing methods of committing patients to state institutions for the insane fostered the unfortunate idea that insanity was a disgrace, and to work for improvement; he always insisted on the use of the word *hospital* instead of *asylum*.

Dr. Kilbourne was licensed in Minnesota under the medical practice act of 1883, receiving certificate No. 1468 (R) on June 22, 1887. He was a member of the Olmsted County Medical Society, and affiliated groups, for forty-five years, and at the time of his death of leading local, state and national medical associations, among them the Southern Minnesota Medical Association (a founder, 1892; its second president, 1893-1894), the Minnesota State Medical Association, the American Medical Association, and the American Psychiatric Association (a life member; its president, 1908-1909); this last society was from 1844 to 1892 the Association of Medical Superintendents of American Institutions for the Insane, and from 1892 until the second change of name, the Medico-Psychological Association.

Interested in social and civic affairs, Dr. Kilbourne was active in Masonic circles, was a Knights Templar, and a member of the Rotary Club. For twenty-five years he served on the Rochester Library Board and as senior warden of the Calvary Episcopal Church of the city.

When Dr. Arthur Foote Kilbourne died at his home on November 30, 1934, in his seventy-seventh year, after a considerable period of failing health, he had given fifty years of distinguished service to the state. High tribute was paid him from many sources as gentleman, scientist and executive. Perhaps the most discerning was the comment, "His outstanding trait was his unfailing kindness and tolerance; he always saw the other person's side of any question."

Dr. Kilbourne was survived by his wife, a daughter and a son. Arthur Donahower Kilbourne died on February 14, 1939, at his mother's home in Evanston, Illinois. In 1942 Mrs. Kilbourne, with her daughter, Miss Katherine Kilbourne, returned to Rochester. Mrs. Kilbourne died in Rochester early in 1947.

Horace F. Kilgore, a homeopathic practitioner, born in 1835, was in Pleasant Grove, Olmsted County, in 1873, according to the *History of Homeopathy* (1880). Other reference to his residence and his activities in the county has not been noted by the writer, and it is believed that his stay was short. On December 31, 1883, when he probably had been resident in Luverne, Rock County, for a considerable time, he received exemption certificate No. 702-3 (H), under the medical practice act of that year. There is record also that prior to 1890 Mrs. H. F. Kilgore, of Luverne, filed an affidavit with the Minnesota State Medical Examining Board that she had been engaged in the practice of medicine in Minnesota before July 1, 1887. The name of Dr. Horace F. Kilgore appeared in the first edition of the directory of the American Medical Association, in 1906; information as to graduation from a medical school had not been available.

Axel N. Knudson, or **Knutson (1826-1899),** born in Ofoten, Norway, came with his wife from Norway to southern Minnesota in 1871 and settled first on a farm three miles from Albert Lea. His professional qualifications are not known; notes about him are included here because he was one of a numerous class of practitioners common in the region in those early years.

Left with an infant daughter at the death of his wife in 1873, he presently remarried. When this marriage ended after twelve years, he began to drift from town to town, and during the next fourteen years he lived in Deborah, Iowa;

in Spring Grove, Houston County, Minnesota; in Mabel, Fillmore County; and in Rock Dell and Rochester, Olmsted County. He sought always his fellow Norwegians, carrying with him his medical equipment in three small chests, and giving "Russian steam baths, cupping, bleeding and medical treatment."

This practitioner spent his last two years as a lodger at the home of Mr. and Mrs. Nels Young, of Rochester, in rooms over the harness shop of Campion and Marrens on Third Street. His death occurred as the result of a fall from the sloping roof of a high shed onto which his room opened. The Rochester press described Dr. Knudson as a recluse who long had led a pathetically lonely life, a deeply religious man and an honest exponent of healing as he knew it. The funeral services were held at the Zion Church, Rock Dell, with burial near by. Halvor Oleson of Rock Dell had been his friend and confidant. It was discovered after Dr. Knudson's death that his only daughter, Mrs. Fred Webber, was living in Austin, Minnesota; she had not heard from her father for twelve years.

Sarah (Mrs. F.) Koontz, who was known in her locality as a "magnetic healer," was born about 1835 and in 1876 or a little earlier she came to Oronoco Township, Olmsted County, from Elkhart, Indiana, with her husband, who was a farmer, and two children, Curtis and Alice. The family home was about three miles south of Oronoco, near Stone's Corners. When he was a young man, Curtis Koontz returned to Elkhart, where he became a railway employe. Alice, who was born in Elkhart in 1861, was married in 1882 to Albert W. Clason, of Oronoco Township, and in the community of her early home spent the remainder of her life. She died on November 14, 1899, under chloroform anesthesia, in a dentist's chair in Rochester. She was survived by her husband, four children, and her brother. Mr. and Mrs. Koontz had died some years earlier.

Mrs. Sarah Koontz on December 31, 1883, under the medical practice act of that year, received state exemption certificate No. 703-3 on giving proof of at least five years' practice of healing in Minnesota.

A reminiscent account has come from an elderly man who was a small boy in Oronoco Township in the eighteen seventies. The Koontz family were good citizens. Many residents within a wide radius had faith in Mrs. Koontz' ability as a healer. "She had a wonderful practice, people really thought that she did a lot of good," and they went to her for relief from various ailments. She would never set a price for her treatments (could not, legally?), but after a patient had consulted her two or three times, perhaps for a cold, she would accept a few dollars. Her procedure of healing was to go into a trance, apparently induced by her stroking her brow with her fingertips, using her arms in rhythmic gestures, snapping her fingers on the completion of each stroke as though casting something from her, and talking always in rhyme. When the trance was established, she would approach the patient, make gestures of stroking the patient's forehead although as a rule not actually touching it, and snapping her fingers. If the sufferer had rheumatism, and many persons in that period did have it, she occasionally would touch lightly the aching region. The afore-mentioned small boy of the seventies was taken to her by his mother over his bitter protest that he did not want to go to "that old fool." He was overwhelmed by consternation when Mrs. Koontz said, during the treatment, "You call me a fool, and I will wind you on a spool and send you to school."

Nathaniel S. Lane (1851-1921) was from 1882 to 1909 a physician of Minnesota; in Eyota, Olmsted County, from 1882 into 1888; in North St. Paul from 1888 into 1894; in Winona from 1894 into 1909.

Born at Paterson, New Jersey, on August 1, 1851, Nathaniel S. Lane was the son of an English father, who was an actor, and a French mother, whose surname was Freeman. He had a sister and a brother, John. After the death of his mother, in her thirties, the boy was abandoned by his father in New York City and became a ward of an orphan asylum. Bound out to a farmer in McHenry County, Illinois, he not long afterward ran away to Chicago and there, with courage and persistence that can only be imagined, he obtained an excellent academic education. All his life he was a worker for improved methods of education, perhaps, his daughter has said, because he had seen so much suffering from lack of education. There is evidence that he first came to Eyota in the middle eighteen seventies, for there is recollection that he read medicine in the village with Dr. A. W. Stinchfield, who settled in Eyota in 1873; probably in this period the young man met the Olmsted County girl he was to marry in 1878.

In 1877 Nathaniel S. Lane received his degree of doctor of medicine from the Chicago Medical College (the Medical Department of Northwestern University) and in the same year began medical practice in Stanton, Nebraska. On October 10, 1878, he was married at Rochester, Minnesota, to Emma Virginia Fulkerson, a daughter of the Reverend J. W. Fulkerson of Willow Brook Farm, near Predmore Village, in the region of Marion and Simpson. Mr. Fulkerson had been sent as a missionary to southern Minnesota in 1856 by the Board of Missions of the United Brethren Church; he was for many years an honored citizen of Olmsted County, as today (1947) his descendants are respected residents of Rochester.

In 1882 Dr. and Mrs. Lane returned from Nebraska to settle in Eyota, Minnesota, where the doctor operated a drug store and followed his profession, during the greater part of his residence of six years in partnership with Dr. Stinchfield. By 1887 he had acquired interests in North St. Paul, notably a drug store in partnership with Howard E. Barto, also of Eyota, and after taking a postgraduate medical course in New York City early in 1888, he removed to North St. Paul in April of that year to enter practice with Dr. Edgar A. Holmes. Dr. Holmes, as noted earlier, had been a boy in Eyota and, like Dr. Lane, had studied medicine with Dr. Stinchfield; he removed to St. Paul in April, 1888, from Oronoco.

After six successful years in North St. Paul Dr. Lane returned to southeastern Minnesota, to Winona; there in November, 1901, he joined a clinical group as a specialist in diseases of the ear, nose and throat, and remained until his health, never good, forced his retirement from practice in 1909. His associates in Winona were outstanding in the medical profession of the state: J. B. McGaughey, E. D. Keyes, Donald B. Pritchard, H. Lichenstein, Oswald Leicht and Hugh F. McGaughey, son of J. B. McGaughey.

Dr. Lane was a member of fraternal organizations, among them the Masonic lodge. He was a founder of the Olmsted County Medical Society, when it was re-established in December, 1885, a member of the Southern Minnesota Medical Association, the Minnesota State Medical Society (from 1886), the American Medical Association and the Winona County Medical Society. His state license, No. 677 (R), issued on January 10, 1884, was filed in Olmsted County on February 21 of that year.

On his retirement from medical practice Dr. Lane, drawn by the climate of the Northwest and the Pacific Coast as favorable to his hobby of horticulture, lived in the West for two years, first in Spokane, Washington, and next in California. From 1911 into 1913 Dr. and Mrs. Lane were in Predmore and Simpson, to care for the venerable Mr. and Mrs. J. W. Fulkerson in their last years. From 1913 into 1916 Dr. and Mrs. Lane were in St. Paul, and in the latter year removed to Evanston, Illinois, to be near their only child, Ruth Lane (Mrs. Edward R.) Ladd. Of ample means, the doctor in Evanston, as elsewhere, engaged in his hobby of raising flowers and fruit; his beautiful gardens still are recalled.

Talented and able, quiet, reserved, and always kind, Dr. Lane is well remembered. He died in Evanston on September 4, 1921, after two years of complete invalidism, the result of a stroke. After her husband's death Mrs. Lane made her home with Mrs. Ladd. Mrs. Lane died on September 12, 1934, and was buried beside her husband in the Evanston Memorial Park Cemetery. Ruth Lane Ladd, a graduate of Northwestern University, has given Dr. Lane's medical diploma to the university's medical department for its archives.

H. H. Lang, according to the *Minnesota, Dakota and Montana State Gazeteer and Business Directory* of 1884-1885, was in Byron, Olmsted County, in that period. Other mention of this physician has not been noted by the writer.

Benjamin F. La Rue was a physician in Eyota, Olmsted County, for about a year from November, 1868, into November, 1869. Although his birthplace and parentage have not been learned, it seems probable, judging from his association with Wabasha County, that he was related to the La Rue family of that region: Professor G. S. La Rue, who in the eighties was a druggist, bookseller and grocer of Plainview, came to Plainview with his parents when he was ten years old. Charles La Rue, of Greenfield, an early settler of the county, came there in 1862.

In Eyota Dr. La Rue had his office in the residence of Mr. B. A. Grubb. When he left Eyota, it was evidently to improve his professional knowledge, for in 1870 he was graduated from Rush Medical College. In that year he began practice in Lake City, Wabasha County, and for the next nine years was in Lake City or in Read's Landing, the latter also on the Mississippi River, near Wabasha.

In notes about a meeting of the Wabasha County Medical Society *(History of Wabasha County,* 1884) held on December 8, 1870, at the office of Dr. Francis H. Milligan, of Wabasha, mention was made of two new names, F. Lessing and B. F. La Rue), on the roster. "The other name [La Rue] new in the record, was the recording secretary. How or when these two joined does not appear, nor when Dr. B. F. La Rue of Lake City was chosen secretary, but they entered by the 'strait gate' for they were not the kind of men to climb up some other way." Dr. La Rue again was elected secretary on January 16, 1872, at a meeting at the office of Dr. Nathaniel F. Tefft, of Plainview.

In 1879 Dr. La Rue removed from Wabasha County and southeastern Minnesota to Appleton, Swift County. He was licensed in Minnesota on November 26, 1883, receiving certificate No. 402 (R). He was listed as at Appleton in successive issues of the directory of the American Medical Association from 1906 to 1916, inclusive.

Joseph Alexander Leonard (1830-1908), although a qualified physician of excellent training and a leading citizen of Rochester, Olmsted County, for fifty years, neither practiced medicine in Minnesota nor used the title "Doctor," it is believed, in this state. A sketch based on detailed accounts of his life is given here because of his long and distinguished career, in which he contributed much to county and state in many positions of responsibility, some of which had to do with medical affairs.

Born on January 24, 1830, at Cambridge, Maryland, Joseph Alexander Leonard was the youngest of the five children of the Reverend William Leonard, member of the Philadelphia Conference of the Methodist Church, and Harriet Laverty Leonard; these parents were natives respectively of Salisbury, Maryland, and Berks County, Pennsylvania. After some years at West Chester and Columbia, Pennsylvania, the family in 1840 removed to Philadelphia, and there Joseph A. Leonard received his early education and worked in a dry goods store and in a book publishing house. When he was seventeen years old he entered the office of Professor James McClintock, lecturer on anatomy and surgery at the Philadelphia Medical College. He was graduated from this college three years later, in 1851, still six months under legal age. Dr. Leonard practiced medicine at Dowagiac, Michigan, until the summer of 1853, when he removed to Whitewater, Wisconsin. In Whitewater he continued practice for a year and a half and began newspaper publication. In December, 1856, with his partner he moved the *Whitewater Gazette* to Waukesha, Wisconsin, and consolidated it with the *Waukesha Plain Dealer,* founding the *Waukesha Republican.* In the spring of 1858 Dr. Leonard went to Madison to serve as clerk of the committee of the state legislature appointed to investigate loans of the state school funds.

In June, 1858, Dr. Leonard arrived in Rochester, Minnesota, and here he studied law under the Hon. M. W. Fay, was admitted to the bar, became Mr. Fay's partner, and in 1859 became county attorney, the first to be elected in the county; under state government the office of county attorney superseded that of district attorney, which had obtained under territorial government. Appointed by President Lincoln, Dr. Leonard was the first Republican postmaster at Rochester. During the Civil War he was appointed by the President a captain of commissary and served from May, 1864, until the close of the war with the First Division of the Sixteenth Army Corps, a command which included four Minnesota Regiments. At the close of hostilities he was stationed at Selma, Alabama, as depot and post commissary; he returned to Rochester in August, 1865, with the brevet rank of major.

In November, 1865, with Walter S. Booth, Dr. Leonard purchased the *Rochester Post* and returned to newspaper editing and publishing. Beginning in January, 1868, he served two terms as president of the Minnesota Editorial Association; in 1868 also he was elected state senator from Olmsted County. In May, 1874, appointed by President U. S. Grant, he became register of the United States Land Office at Jackson, Minnesota, an office which he held until August, 1875. In the latter year he was appointed by Governor Cushman Davis of Minnesota a member of the first board of directors of the Minnesota Inebriate Asylum, at Rochester, and was treasurer of the board until he resigned in 1876; this hospital, as stated elsewhere, before completion of the buildings, and after much argument as to its proper function, became the Second Minnesota Hospital for Insane, which was opened officially on January 1, 1879.

Between July, 1881, and July, 1893, the Honorable Joseph A. Leonard was successively United States consul at Leith, Scotland, two years; consul general at Calcutta, India, three years; and consul general at Shanghai, China, four years. During intervals between assignments he published the *Rochester Post.* From 1896 to 1903 he was probate judge of Olmsted County.

Joseph A. Leonard was married on October 30, 1861, to Kate Cowles, of Rochester. Born in New York on December 19, 1842, Kate Cowles was a daughter of Zalmon John Cowles, a native of Litchfield County, Connecticut, and Sarah Huber Cowles, who was born in New York. Mr. and Mrs. Cowles were married in Geneva, New York, in the late eighteen thirties and came to Olmsted County, Minnesota, in 1858. Their children were Martha, Helen A., Kate, Augustus B., Torris, Sarah V. and Frances Kachicqua. Helen Cowles was married on September 8, 1869, to Dr. Reginald M. Reynolds *(q.v.)*, of Rochester, later of Fergus Falls, and finally of Redlands, California. Frances Kachicqua Cowles became the wife of the Hon. Elmer E. Adams, of Fergus Falls.

An undertaking of the last nine years of Dr. Leonard's life was the gathering and preparation of historical and biographical data toward a local history; Leonard's *History of Olmsted County* appeared in 1910, two years after the death of its chief author, on December 28, 1908. Mrs. Leonard died on January 17, 1909, survived by her two daughters, Miss Maude Leonard, of Rochester, and Mrs. Kate Leonard Kelly, of Chicago.

John Quincy Adams Low (commonly, Quincy A. Low), long in Wabasha County, was for a time in 1873-1874 a physician and surgeon in Rochester, Olmsted County.

Born in Vermont in 1848, John Quincy Adams Low came west with his parents in 1860 to Wiscoy Township, Winona County, Minnesota. The boy spent his early years on the home farm and attended the local school. At seventeen years of age he enlisted, on February 21, 1865, in the Second Minnesota Regiment of Cavalry, from which he was mustered out on November 22, 1865.

On returning home from the service he entered Hamline University, then in Red Wing, Goodhue County, where he completed four years of study. In the next three years he read medicine in the offices of Drs. William H. H. Richardson and Franklin Staples, of Winona, and during this time attended two courses of lectures at the medical department of the University of Michigan. In 1873 he was graduated with the degree of doctor of medicine from the Long Island College Hospital, New York, and at the same time received an addendum diploma for special work in operative surgery.

Although the Rochester residence was not mentioned in the history of Wabasha County (1884), from which a portion of the foregoing was drawn, it is obvious that Dr. Low came to Rochester immediately after graduation. There were occasional newspaper comments on his practice; for instance, that on December 9, 1873, he assisted Dr. Hector Galloway to perform "an operation for hairlip on an infant child whose parents live at Rock Dell."

In January, 1874, Dr. Low removed from Rochester to Wabasha, where he had an office over Jewell's Hardware Store. He was married on January 24, 1875, to Miss C. E. Finch, of Hennepin County. In 1877 he became a member of the Wabasha County Medical Society and for several years served as secretary; he early was admitted to the Minnesota State Medical Society and the American Medical Association. Licensed in Minnesota on November 24, 1883, he received certificate No. 370 (R), which he duly filed in Wabasha County on December 13. Dr. Low was county health officer in 1883, at least, and was a member of the local United States board of pension examiners in the early eighteen nineties.

After more than twenty-five years in Wabasha, Dr. Low removed to a farm home near Crookston, it is said, and there continued his medical practice. On November 15, 1907 the *Journal of the Minnesota State Medical Association and* *the Northwestern Lancet* stated that Dr. Low had removed to California to make his home.

Jesse N. McLane, physician and surgeon, second member (Dr. Martin T. Perrine, the first) of his profession in the frontier settlement of Rochester, Olmsted County, arrived from Indiana in the summer of 1855. Record indicates that for the first few years of his residence he was more active as a city and county officer and promoter of real estate than as a practitioner.

On July 25, 1855, Dr. McLane was appointed the first register of deeds of Olmsted County by Territorial Governor Willis A. Gorman and on October 9, 1855, duly was elected to the office, which he held into 1857. In 1856 he was one of a committee to arrange for the erection of a suitable building for the use of the county officials, and in that year also he was one of a committee to solicit subscriptions to send an agent to Washington, D. C., in the interest of the Root River Valley Railroad. In 1857, the county being without a court house, the courts were held in Morton's Hall, on Main Street, and the meetings of the county commissioners in Dr. McLane's building, a small frame structure, the first of the sort on Broadway, on a portion of the present site of the Cook Hotel Building. In 1861 the doctor was chairman of the supervisors of Rochester Township and that summer was prominent in organizing a great county celebration, in Rochester, of Independence Day. During this early period, it has been said, his residence was a few blocks off Broadway, on Zumbro Street, which then was little more than a footpath.

When Rochester Lodge No. 21 (A.F. and A.M.) was organized in Rochester on August 24, 1857, at Le Sueur Hall, Dr. McLane was one of the charter members and was made Senior Deacon .

The first reference noted to Dr. McLane as a practicing physician appeared in the *Rochester City Post* on July 4, 1863, announcing his professional card elsewhere and describing him as a prudent, skillful and experienced physician; his office and residence were with Lewis McLane on Franklin Street, between College and Second Streets. The card appeared at intervals until in October, 1864, the doctor went to New York City for six months to attend courses of medical lectures. Editorial comment was: "A well-read library during the intervals of an extensive practice and an occasional attendance upon medical lectures are the invariable marks of a reliable and skillful physician, who has already gained and who will maintain a standing in the front ranks of his profession."

In the autumn of 1865 Dr. McLane, genial and highly esteemed citizen, with his family removed to Huntsville, Alabama, thence to Meridian, Mississippi, and next to Pensacola, Florida. Although it has been stated that Florida remained his headquarters, he was in Chattanooga, Tennessee, in 1873 and for a considerable time thereafter as one of a company engaged in the construction of a blast furnace for the manufacture of iron.

John Lewis Martin (1806-1885) was from 1856 to his death, farmer, Wesleyan Methodist minister and actively practicing homeopathic physician in southern Minnesota, successively in Mower, Olmsted and Dodge Counties. He has been mentioned as in Fillmore and Jackson Counties also, but exact record has not been available. Dr. Martin has been described as a small, wiry, bewhiskered man, dignified and respected, who commonly rode on horseback to make his professional calls and to relieve in the pulpits of his brother clergymen.

Born on September 17, 1806, in Madison County, New York (his birthplace sometimes is given as Albany, Albany County, New York) John Lewis Martin was one of a family of seven children whose parents were John L. Martin, from the north of Ireland, a teacher in a school for boys, and Mary Martin, a seamstress, a native of Edinburgh, Scotland. In early adult years he was a clerk in a store. His medical training is unknown; one of his descendants has recalled that he had a medical certificate that had been issued in New York State. Dr. Martin was married in Albany, New York, to Emmeline J. (the name later was changed to Elizabeth Ruth at his request) Berghes, a teacher of music. About 1850 he came with his wife and children to Valparaiso, Indiana, and in 1856, by ox cart, into Mower County, Minnesota, where he farmed in Section 15, Frankford Township, and practiced medicine over a wide surrounding region It is said that he conducted the first neighborhood school of the community in his log house, and that during the diphtheria epidemic of 1866 he rendered valiant service. Mrs. Martin died on December 10, 1870, in her fifty-first year, and was buried in Frankford Cemetery. Still in Frankford in 1874, it is said that during the next two years Dr. Martin and his children were living in or near the village of High Forest, Olmsted County.

For some months in 1876 and early 1877 a Dr. Martin, a homeopath, was in Eyota, Olmsted County, in partnership with Dr. Isaac M. Westfall, and it appears probable that this was Dr. John L. Martin. Dr. Westfall long was a well-known farmer, preacher and practitioner in and near Rochester; his stay in Eyota was short.

In 1877 Dr. Martin settled in Wasioja, Dodge County, so that his children, Fannie, Julia, Fehlena, Amanda, Elizabeth, John, Lewis and Albert (three other children died in infancy) might be educated at the Wasioja seminary. (The seminary, founded by local Free-Will Baptists in 1860, after a few years came under the sponsorship of the Wesleyan Methodist Church. In the course of time the school, as noted elsewhere in this paper, experienced several changes in name as well as a decline in fortune. After the building burned, in 1905, the seminary was not reorganized.)

In Wasioja Dr. Martin engaged in preaching and medical practice. He died in Wasioja, from cardiac disease, on September 22, 1885, and was buried beside his wife in Frankford Cemetery. In 1942 his children were long since dead; several grandchildren and great-grandchildren survived.

St. V. Martinitz, native of Bohemia, was in southern Minnesota in the eighteen seventies and perhaps longer. For a few months in 1874 he was in Owatonna, Steele County. Beginning in August, 1874, the newspapers of Rochester, Olmsted County, published his professional card, "Eclectic physician, office over Central Meat Market. County and city practice," and various notes about his activities. His practice extended as far as Rock Dell to the west and Greenwood Prairie to the east; his hazardous experiences with floods in the Zumbro River and its tributaries, and with storms, were those of his contemporaries.

When in 1878 Dr. Martinitz with his wife spent several months in Europe visiting Bohemia, studying in Vienna, Munich and Paris, his practice was conducted by young Dr. Seth Scott Bishop, newly arrived in Rochester from Fond du Lac, Wisconsin.

In January, 1879, Dr. Martinitz removed from Rochester to Northfield, Rice County. In 1893 a letter came from him, then practicing in Cedar Rapids, Iowa, under the "time act" of that state, informing a Rochester resident that he had been appointed a member of the "Official Council of the World's Congress." In 1896 he was listed in a four state medical directory as of Cedar Rapids; his name did not appear in the first edition (1906) of the directory of the American Medical Association or in later editions.

William Worrall Mayo (1819-1911), one of the earliest physicians and surgeons in the state and in Olmsted County, and his two sons, William James Mayo (1861-1939) and Charles Horace Mayo (1865-1939), all of Rochester, Olmsted County, held a unique position in the practice of medicine in Minnesota. The sons from boyhood received professional training under their father, were graduated each from an excellent medical school of the Middle West and came into practice in the formative period of medicine and surgery when asepsis and antisepsis had been recognized but were not yet established.

William Worrall Mayo was born in the parish of Eccles, near Manchester, England, on May 31, 1819, a son of James Mayo and Ann Bonselle Mayo, who was a daughter of John Bonselle and Tenneson Worrall Bonselle. Members of the Bonselle and Tenneson families crossed to England with the Huguenots fleeing France; the Worralls were a well-established family in Manchester. James Mayo was of the Wiltshire Mayos, among whom were physicians and scientists, who in 1527 came into Lancashire; in his line for generations the names *William* and *James* had been used. When James Mayo died in 1826 his widow removed to the village of Salford, near Manchester, with the six children, Ann, James, William Worrall, Esther, Sarah and Mary.

William W. Mayo received his early education in the schools of Salford. Later he was a special student in chemistry, physics and microscopy under John Dalton, the physicist, in Manchester. He first studied medicine at the Pine Street Medical School in Manchester and later at medical colleges in London and Glasgow. In 1845 he came alone to New York City, where for some months he was employed in the drug room of Bellevue Hospital, and 1846 he began the westward journey from New York by inland waterways that led to Lafayette, Indiana. There, in 1849, after engaging in different occupations, he resumed the study of medicine, under the preceptorship of Dr. Elizur H. Deming. On February 14, 1850, he was graduated from the Indiana Medical College, at La Porte, of whose faculty Dr. Deming was a member, and returned to Lafayette to begin practice. In 1851 Dr. Mayo entered partnership in practice with Dr. Deming and in the following year, an accepted story runs, with Dr. Deming and Dr. William H. Byford attempted to revive the Indiana Medical College, which had closed in 1850; the effort was abandoned when fire destroyed their building and equipment.

On February 1, 1851, William W. Mayo was married at Galene Woods, Michigan, to Louise Abigail Totten Wright. Of Scotch and English descent, Louise Wright was born in Jordan, Onondaga County, New York, on December 23, 1825; an orphan since childhood, she came in 1843 to the home of relatives in Michigan and later to La Porte, Indiana, where she met William W. Mayo. A sturdy, handsome young woman, she was the equal in courage and intelligence of her husband. The first child of the marriage, Horace, died in infancy; a daughter, Gertrude Emily, was born in 1853.

In 1853 Dr. Mayo accompanied Dr. Deming to St. Louis, Missouri, where the older man was joining the faculty of the medical department of the University of Missouri. In St. Louis Dr. Mayo served as unofficial assistant to Dr. John T. Hodgen, the professor of anatomy at the medical school; in the spring of 1854 he applied for and received an ad eundem degree of doctor of medicine from the university, and returned to Lafayette. His increasing distaste for the malarial climate of Indiana, however, soon drove him forth, on an eventful journey to the

Northwest that brought him to Minnesota by way of a Mississippi River packet that he boarded at Galena, Illinois.

Arrived at St. Paul, then a town of about 4,000, he was favorably impressed and at once returned to Indiana for his family. After his home was established in St. Paul, Dr. Mayo in the ensuing two years, eager to learn more of the picturesque new country and to study Indian customs, made various trips on foot and by canoe into the North Shore region of Lake Superior; from the village of Superior he engaged in frontier activities. On appointment by Governor W. A. Gorman he became a commissioner of Superior County (Duluth County) and for some weeks was temporary chairman of the board; with a Mr. Burke he designated a county seat, the site of which now is unknown. As deputy sheriff of Chisago County he took the census in the lake shore region. For the Northwest Exploring Company he visited prospectors to adjudge the worth of their copper claims; and near the present site of Duluth he staked out a homestead claim, which later was jumped.

In the spring of 1856 Dr. Mayo followed the Minnesota River southwest as far as Cronan's Precinct in Nicollet County, near Traverse des Sioux and four miles north of Le Sueur. There his wife joined him and for three years the family lived on a farm that belonged to an uncle of Mrs. Mayo. Although not farming, the doctor allied himself with local agrarian affairs and ever after was concerned in furthering the interests of farmers. In this locality he returned to the practice of his profession, combining practice, as did other pioneer physicians, with incidental occupations to earn a living. Early in 1859 he removed to the village of Le Sueur where with the aid of his brother James, who had emigrated from England a few years earlier, he built a comfortable home for his growing family. Two children had been born in Nicollet County: Sarah Frances, who died in infancy, and Phoebe Louise (1856-1885). In this home* on June 29, 1861, William James Mayo was born.

Because of his ability and his multiple activities Dr. W. W. Mayo by 1861 was known and esteemed over a wide territory as citizen and physician. In August, 1862, when draft boards were established to act on applications for exemption from military service in the Civil War, he became the examining surgeon for Le Sueur County. In that month, when there came the uprising of the Sioux Indians and the siege and battle of New Ulm, Dr. Mayo was one of the physicians who hastened to New Ulm to care for the wounded. When the uprising was over and thirty-eight of the Indian leaders were hanged at Mankato on December 26, 1862, Dr. Mayo came into possession of the body of Cut Nose, a warrior whom he had encountered unpleasantly some years earlier when the chief and two other Indians had accosted the doctor on one of his lonely professional rides and attempted to steal his horse. The skeleton of Cut Nose Dr. Mayo carefully prepared and articulated, and in later years at Rochester he used it to teach his boys Will and Charlie osteology.

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*In 1932 the house was designated by the Minnesota State Highway Department as a historical site; in 1934 Drs. W. J. and C. H. Mayo presented the property to the village of Le Sueur.

(To be continued in the February issue.)

J. F. Norman, M.D.

President, Minnesota State Medical Association, 1951

President's Letter

January first, this year, is much more than the beginning of a new year; it is the beginning of the second half of the twentieth century. This may mean that we are beginning a new epoch with continued advances in the arts, sciences and techniques of the past fifty years. In the half century just past we have witnessed the most remarkable progress. The Medical Sciences have kept apace with the others, and this new knowledge has been applied to extending man's life with alleviation of much of his suffering. The average citizen lives longer, more comfortably, and he knows that he is protected from the great epidemics which used to decimate mankind. This has been brought about by free medical men, working because they wished to, and not at the behest of a super government which might place the scientist and worker where it wished, and might even order the researcher and the physician to make reports which adhered to the party line.

It was these past fifty years that saw the rise of the clinics which became so great a part of the scientific advancement of the time. The physician in practice also had available the great University Centers, and now the added advantage of having several educational courses brought to his own locality, furnished by the University Center.

Physicians were interested in the scientific advances of their time and also in the art of practicing medicine, which means the getting of this new knowledge to their patients. They were not politically minded enough or well-enough organized to realize that they were being confronted by an entirely new type of propaganda which would take from them the management of their own profession. It was at this point that the American Medical Association made the momentous decision of bringing the facts to the people. It was found that the physicians of the United States were not "too proud to fight." Out of this new policy of the American Medical Association came the publicized campaign which sought to bring to the public the view point of organized medicine. The year 1950 has been a memorable one.

Looking ahead, we hope to see a continued advance in the science and art of caring for the ill. We are justified in expecting great progress, as with free men working without governmental restraint, greater accomplishments than we dreamed of in the past should be ours in the future.

Now, I would express my very great appreciation of the honor you have been so kind as to bestow on me. It will give me great pleasure to have an opportunity to meet many of the men of the state. This will be an inspiration to me as it has been in the past. I shall attempt to perform any task that may come to me. It will be a source of comfort to know that Mr. R. R. Rosell, our Executive Secretary, and others will make smooth the work of the Minnesota State Medical Association, and that Mr. Manley Brist, our legal advisor, will continue to give us his very valuable aid.

I wish to extend to the members of the Minnesota State Medical Association my very best wishes for a very Happy New Year.

J. F. Norman

President, Minnesota State Medical Association

◆ Editorial ◆

Carl B. Drake, M.D., *Editor;* George Earl, M.D., Henry L. Ulrich, M.D., *Associate Editors*

AMA DUES

IT is not surprising that confusion exists in the minds of some of our members as to American Medical Association dues and membership. The following, we believe, is an accurate statement of the present status of the subject.

Membership dues in the Minnesota State Medical Association for 1951 are $30.00; in the AMA $25.00. Both sets of dues were payable with County Society dues to the treasurer of the County Society on January 1, 1951. The AMA membership dues of $25.00 includes a subscription to the *Journal of the American Medical Association.*

In order to be listed as a Fellow of the AMA in 1951, an additional $5.00 is payable to the AMA direct, at 535 N. Dearborn Street, Chicago 10, on receipt of a bill for such dues. A Fellow of the AMA is entitled to attend the scientific meetings of the AMA and to take part in such meetings. He is also privileged as a Fellow to receive one of the specialty journals published by the AMA in place of the *Journal of the American Medical Association.* Only an active member of the AMA may become a Fellow.

Commissioned medical officers of the U. S. Army, Navy, Air Force and Public Health Service, upon nomination by the Surgeon General of the respective service, and the permanent medical officers of the Veterans Administration, who have been nominated by its Chief Medical Director, may become Service Fellows upon approval of the Judicial Council of the AMA. Service Fellows need not be members of a County or State Medical Association nor the AMA, and they do not pay Fellowship dues. They, however, do not receive the *Journal of the American Medical Association* except by payment of the subscription price of $15.00.

If a local County Society regulation permits, a Service Fellow may become an active member of that society and enjoy the same privileges as any other active member.

A regulation which is not generally appreciated is that an active member becomes delinquent if his dues are not paid by December 31 of the year for which dues are prescribed and shall forfeit his active membership in the AMA if he fails to pay the delinquent dues within thirty days after notice of his delinquency has been mailed by the secretary of the AMA to his last known address; also, that members of the AMA who have been dropped from membership for non-payment of dues cannot be reinstated until such indebtedness has been discharged.

Previously, membership in a County Medical Society and State Medical Association automatically meant membership in the AMA. That applied up to 1950—the first year AMA dues were required. Now the rather incongruous situation exists that a physician can be a member of a component County Society and State Medical Association but not of the AMA, which is composed of the State Medical Associations. As representation in the AMA House of Delegates is based on one delegate for every 1,000 AMA members or fraction thereof from each state, the percentage of state members who pay their AMA dues becomes important.

CORTISONE AND ACTH

CORTISONE and ACTH are powerful drugs —atomic-like in action! I recall the lectures at the Mayo Clinic of that philosopher-king, the late Dr. Henry Plummer, on myxedema patients. He would compare the myxedema patient to an automobile deeply mired in the mud. To free the car, he explained, one would have to slowly ease it out of the mud. A quick pull, or the application of an explosive force would liberate the car to be sure, but it would also tear it to pieces with the force. So Doctor Plummer, knowing the myxedema patient was mired in deep physiological stasis due to lack of thyroid substance, would, by the same process of reasoning as in the liberation of a mired car, ease the patient back to the highway of well-being by prescribing small doses of thyroid to start with and, gradually, over weeks and months, increasing the dose until normalcy was achieved.

I have followed the use of Cortisone and ACTH, through excellent reports. Just recently have these drugs become universally available to the medical profession. I have not yet used them. I fear and respect their latent powers. Were I to use them, I would surely follow Doctor Plummer's rule in their administration—small doses over months of time in order to give the mired body an opportunity to ease out of the deplorable condition it is in. One must remember that the majority of conditions for which these drugs are used, have developed over a period of years. To expect to bring about a complete restoration in a few weeks' time is too drastic. Is it any wonder that one encounters serious complications such as mental changes, diabetes, perforated gastric ulcers, skin manifestations of hirsutism, hyperpigmentation, striae atrophica, to say nothing of possible injury to tissues—injuries not observable right away, injuries that may, in time, show up and possibly cause more serious trouble than that with which the patient is already suffering. It seems to me, too little time has passed by to allow these powerful drugs to be used universally. More time and study, especially on more remote effects, should be given. Doctor Plummer's technique in the administration of these drugs should be given a thorough consideration.

These drugs are really ATOMIC in power!

J. J. Heimark, M.D.

PUBLIC RELATIONS

ON DECEMBER 3 and 4, the Third Annual Medical Public Relations Conference was held at the Statler Hotel in Cleveland. Mr. Lawrence W. Rember, secretary to the General Manager, Dr. George F. Lull, and his staff deserve a great deal of credit for having arranged for a most informative meeting addressed by members of the profession from all over the country who had had experience in the various phases of public relations. The meeting was attended by some 340 members of the profession and executives of various county and state medical societies. The attendance demonstrates the interest manifest in the subject. Until two years ago, the AMA laid little emphasis on the many faceted subject of public relations. With the employment of Whitaker and Baxter and the increase in dues to provide for intensive public relations activity, the picture has changed, and the threat of removing medical practice from the domain of private industry has been temporarily averted. There is no reason, however, for members of the medical profession to be complacent or to rest on their oars in approaching the new year or for that matter the years to come. Washington is full of schemers who will submit bills to Congress from time to time with socialism in view.

The establishment of proper public relations between the medical profession and the public cannot be left to the AMA alone. Each state medical association and each county society should have its Public Relations Committee and, fully as important, each individual physician should make it his business to see that his relations with his patients and the public are as they should be. Medical public relations constitute doctor-patient relationship in its many phases. It means providing the best medical care possible to the public at a price they can afford to pay. It means availability of a doctor when he is needed and the elimination of unnecessary operations and medical care. It means taking part in civic affairs and contributing to community chests.

Our profession has been subject to vilification on the part of those who would like to sacrifice the welfare of the public by substituting government medicine for private practice in order to satisfy their political ambitions. Some of the falsifications of certain of these political figures have been answered in an outstanding manner by our national president in 1950, Dr. Elmer L. Henderson of Louisville, Kentucky. The choice of Dr. John W. Cline of San Francisco to head the AMA in 1951 was wise. He has shown himself to be able in word and deed and should be an inspiring leader.

Some minor points were brought out at the Cleveland meeting that local societies might wish to note. In some societies, special meetings are arranged for the new members just embarking on the practice of medicine. Few have had any instruction in medical schools on the economic phase of practice. Indoctrination programs might well include discussion of the matter of fees. Some of the newer members have expressed the opinion that they must charge high fees inasmuch as they have been in the service and the older members of the profession have been reaping a harvest while staying at home. They forget mayhap that there was a World War I. At any rate overcharging is poor public relations. The new mem-

(Continued on Page 80)

MEDICAL ECONOMICS

Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association
George Earl, M.D., Chairman

AMA INTERIM SESSION CITES PROGRESS, NEW GOALS

Considered "the finest four-day refresher," the AMA Clinical Session held in December in Cleveland featured reports on progress made in the National Education Campaign, renewed vows for continued efforts to defeat the socialized medicine threat, and set forth toward new goals in medical public relations during 1951. Approximately 5,000 doctors from all over America met at Cleveland to hear speakers and listen to reports of past activities and plans of 1951 programs.

Trustees Vote "Medical Aid" Fund

One of the most dramatic developments came when it was announced to the House of Delegates that the Board of Trustees had voted to provide a "half million dollars out of its National Education Campaign Fund, which was raised to defend medical freedom, for the aid and support of medical schools which are in need of additional financing." The announcement was made by Dr. Louis H. Bauer, chairman of the Board of Trustees, who pointed out that there is growing public awareness that federal subsidy has come to be a burden, not a bounty, for it is bringing intolerable increases in taxation, and "is dangerously increasing federal controls over our institutions and lives of our people."

PRESIDENT PRESENTS KEY VIEWPOINTS

Dr. Elmer L. Henderson, president of AMA, presented to the House of Delegates, several major positions of the AMA. Emphasizing the policy of private aid to medical education, rather than control-producing federal subsidy, Dr. Henderson stated:

> "Many other sources of financial aid to medical education have been overlooked, and the profession's responsibility to assist actively in gaining additional support for the schools has not been fully recognized. Events of the past year have made it clear that there are those who interpret the American Medical Association's opposition to the bills for federal aid to medical education presented before Congress, as indifference to the problems of the medical schools and the needs of the nation for adequate facilities for the training of physicians."

He declared, "We must make it clear that the profession is not indifferent to these problems. Let us face clearly our obligation individually and collectively to provide significant financial assistance to the medical schools and to study other ways by which we can help them meet their problems."

The president explained the splendid work being done with respect to the program of hospital standardization. He cited the meetings of the American Medical Association with the American Hospital Association, the American College of Surgeons and the American College of Physicians, as making real progress toward developing a coöperative program "in which the best interests of the public, the hospitals and the profession will be considered."

Dr. Henderson stressed the continued need for establishment of more public health units throughout the country, stating, "Effective and properly operated public health units is basic to the maintenance and improvement of the health of the people."

Praises Small Business' Aid

Summarizing the AMA's National Education Campaign, Dr. Henderson lauded millions of Americans throughout the nation for their active support of this vital program:

> "That unselfish, spontaneous support came from more than 65,000 individuals, firms and associations, with the vast majority located in the small cities and small towns of America. They represented not 'big business' but the 'grass roots' life of the nation."

Warns of Overconfidence

"The November elections brought defeat to a number of the most outspoken advocates of compulsory health insurance, and also to a number of candidates who hedged on the issue. The elections also provided a general repudiation of the over-all trend toward state socialism," said the AMA president. However, he sounded a note of warning against overconfidence because of these good results:

> "We still have much work to do before all the basic issues confronting us are finally resolved. To relax now, under the delusion that we already have achieved complete victory, would be to invite a renewed attack by the socializers at a later date. We cannot afford to relax either our vigilance or our effort."

WHITAKER AND BAXTER REPORT ON PROGRESS

A full and factual report on the public significance of medicine's advertising campaign was presented by Miss Leone Baxter of Whitaker and Baxter, before the House of Delegates. Miss Baxter related that, "No profession ever has had a more spectacular demonstration of public confidence than that given to American doctors in their nationwide October advertising program. Never before has one profession, business or industry found thousands of unrelated groups, in virtually every area of the country, coming forward in its defense."

Miss Baxter told the delegates that the purpose of the advertising program was to prove that the American public does not want a Government-directed medical system and is with medicine in the battle against compulsion. She said that people in every corner of the country came forward "to state their views, to take their public stand with medicine, and to spend two million dollars of their own money to do it." She commented:

> "This support did not come from 'big business' and 'reactionary interests' as Mr. Oscar Ewing recently proclaimed it would. It came, with real grass roots strength, from tens of thousands of small advertisers along the Main Streets of America—from drug stores, insurance agents, banks, movies, utilities, churches, medical care plans, dry goods stores, hospitals and clinics, restaurants, laundries and plumbers. . . .
>
> "It (the doctors' campaign) has impelled an important segment of the country to declare publicly its confidence in the medical profession and in medicine's ability to meet the medical needs and solve the medical problems of the people."

Rounding out the report, Clem Whitaker, Director, National Education Campaign, summarized the campaign so far and previewed several aspects of the program for the coming year. Discussing progress medicine has made in the past critical years, Whitaker stated that when medicine was on the defensive, some of the tasks which looked hopeless were by-passed and often called for considerable public support which medicine hadn't then achieved. But, he added:

> "Today, American medicine is in the strongest public position it ever has held, because the people have been given the facts on this issue and have spoken out sharply against the abridgement of individual freedom in our country."

Emphasizes Labor's Position

"There *is* enlightened leadership in labor which has no intention of following Washington bureaucrats and socializers down the dead-end street which leads to regimented serfdom," Whitaker averred. He said that winning labor support is one of AMA's important objectives for 1951:

> "The unions have turned against the Communists who infiltrated their ranks—and are throwing out those who are disloyal to America. And now there are the first signs that many in labor are beginning to recognize that State Socialism and Communism are next of kin. That isn't only good news for doctors; that is good news for all America. . . .
>
> "In Camden, Arkansas, during the American Medical Association's nationwide advertising program, the AF of L unions of that community published a full page of supporting advertising, taking public position beside the doctors of their city. That was an impressive indication of the grass roots labor support which medicine can win when doctors take the facts to the members of their local unions."

LABOR MAN SPEAKS FOR DOCTORS' PROGRAM

American doctors attending the Clinical Session heard the stirring talk of a union president, affirming his organization's stand with American medicine against socialization in any form. The speech of William L. Hutcheson, General President, United Brotherhood of Carpenters and Joiners of America, brought these heartening words before the House of Delegates:

> "I am against socialized medicine. So is the organization which I have the honor of heading. . . . This probably does not jibe with the feelings of a good deal of the rest of the labor movement, because much of the pres-

sure for 'free' medical care is coming from labor organizations. But it does reflect my sentiments and the sentiments of our recent convention. . . .

"Saving a dollar has never been distasteful to me. In fact, I like to get as much for my money as the next man. That is one of the reasons why I oppose socialized medicine. It is no bargain. It looks cheap the way the backers present it, but when you dig down under the fancy layer of propaganda frosting you find that it can be mighty expensive. The British people have already discovered that fact."

Mr. Hutcheson cited figures showing that in the wealthier districts of London there is one doctor for 1,261 patients while in the poorer East End the ratio is one doctor to every 2,472 patients. In some of the other boroughs, the average is 2,897. The speaker remarked:

"If that isn't the 'one horse and one rabbit' recipe transferred from the meat pie maker's kitchen to the national health program, then I need new reading glasses. . . . For all the planning that has been done, there is still an uneven distribution of doctors in London. If the backers of the national health program are to achieve their objective of equal health protection for all, the next step must be to tell doctors when and where and how they are to practice. Therein lies my greatest fear of socialization."

Carpenters Want Freedom, Too

Mr. Hutcheson pointed out that carpenters are an independent lot, warning that socialization of medicine or any other industry or business would just as surely bring on socialization of his own profession:

"I do not know much about doctors, but I know quite a bit about carpenters. . . . The first bureaucrat who told a carpenter he had to work in Little Rock when he wanted to work in Lancaster would be gumming his food for lack of teeth. Carpenters want to be free agents; free to work where they want to; free to negotiate the terms of their wages and working conditions through collective bargaining; yes, even free to leave the industry and try their luck at something else if the spirit moves them.

"They will retain these freedoms only so long as all other groups retain them too. Socialization is like a wolf with a tapeworm; once it starts gnawing, it never can stop. Socialized medicine would only be the first bite out of our free enterprise system; it would not be many years before the carpenters would be feeling the teeth of socialization on the seats of their overalls. Anyway you look at it, socialized medicine is no bargain and the carpenters want none of it."

Respects Doctors' Stand

Mr. Hutcheson's union members, speaking through his speech, showed a high regard for medicine's public opposition to the inroads of socialism:

"We in the labor movement have our own cross of regimentation to bear. The fight you are making is part of the same war. It is a war against concentration of authority in a few hands in Washington. As a veteran of forty years in the labor movement, I know what it is to fight for human rights. I am happy to take my stand beside you."

THE MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

230 Lowry Medical Arts Bldg.,

Saint Paul 2, Minnesota

Julian F. DuBois, M.D., *Secretary*

MINNEAPOLIS CHIROPRACTOR PLEADS GUILTY TO PRACTICING MEDICINE WITHOUT A LICENSE

Re: State of Minnesota vs. Earl F. Seeliger

On December 20, 1950, Earl F. Seeliger, thirty-two years of age, a licensed chiropractor with offices at 402 Wesley Temple Bldg., Minneapolis, entered a plea of guilty in the District Court of Hennepin County, to an information charging him with the crime of practicing medicine without a license. Seeliger was sentenced by the Hon. Frank E. Reed, Judge of the District Court, to pay a fine of $200; the fine was paid.

The defendant Seeliger was arrested on December 6, 1950, following an investigation by the Minnesota State Board of Medical Examiners into a complaint made by Mrs. Rudolph Cimbura, 839 Como Avenue, Saint Paul. Mrs. Cimbura stated that she took her ten-year-old son to Seeliger in January, 1950, because the boy was ill. Mrs. Cimbura stated that, following an examination lasting approximately two hours, Seeliger made a diagnosis of influenza. Mrs. Cimbura stated that part of the examination consisted of having the boy hold a device in each hand, the device being attached to a machine by means of wires. Mrs. Cimbura stated that she asked Seeliger if the boy was not suffering from appendicitis. He replied: "No, it is a case of good old 1918 flu." The boy was given chiropractic adjustments on two occasions. Seeliger also prescribed and furnished certain drugs and medicines, notwithstanding the fact that he has only a chiropractic license. Mrs. Cimbura stated that the boy became seriously ill and was removed to a Saint Paul hospital. A doctor of medicine was called, who stated, following an examination, that the boy was suffering from acute appendicitis. The boy was operated upon and subsequently recovered.

Minneapolis Surgical Society

Meeting of May 2, 1950

The President, Ernest R. Anderson, M.D., in the Chair

THE AXILLARY ARTERY AND ITS BRANCHES

Their Variations as They Pertain to Radical Mastectomy

HERBERT W. PETERSON, M.D.
Minneapolis, Minnesota

A thorough knowledge of regional anatomy is one of the outstanding prerequisites which a surgeon must possess in order to complete a surgical procedure satisfactorily. In most instances, a knowledge of the usual anatomical findings is sufficient for carrying out the uncomplicated operation. Variations from the usual should be known in order that the surgical dissection can be facilitated.

Surgery of the breast, in order to be properly and completely expedited, requires a thorough understanding of the anatomical relationships of the axilla and its surrounding structures. This knowledge includes the usual textbook findings as well as the abnormalities which are not always described in a book of anatomy. With this thought in mind, this subject was selected for study and review. In the final analysis, the more meticulously and completely the axillary vessels and their tributaries can be stripped of their covering tissue, together with their adjacent nodes and fat, the better is the prognosis and chance for survival of the patient.

Anatomical abnormalities pertaining particularly to the blood vessels are often encountered. These variations must be accurately recognized in order that a thorough dissection may be performed without accident. Undue trauma incident to a lack of adequate knowledge could be damaging or even disastrous.

Sixty-seven axillas of cadavers were studied in the anatomical laboratory at the University of Minnesota. This study was concerned chiefly with the axillary artery and its first four branches. An attempt was made to determine the exact point of origin of these branches. Obviously, it cannot include all the possible variations from the usual because the series is not sufficiently large. However, it does represent an over-all picture of the common variable findings encountered when radical mastectomy is performed. The veins, although possessing many more branches and ramifications than the arteries, are considered to accompany their respective arteries. They also carry the same terminology. No attempt at description of surgical technique for radical mastectomy is intended. Each surgeon has his own modification of the original Halsted[2] operation. The primary interest of this study is focused upon the blood vessels of the axilla.

American medical literature appears to be rather limited in respect to this phase of the subject. The most comprehensive and enlightening study for comparison was that of Gesselevitsch,[1] a German anatomist, who was concerned mainly with the anastomoses of blood vessels and the collateral circulation in the region of the axilla and shoulder joint. His analysis was based upon the dissection of 176 cadaver axillas, together with nine x-ray examinations of axillary vessels injected with radiopaque materials. It has been interesting to note the general similarity of conclusions arrived at by Gesselevitsch when compared with those of this study.

For purpose of review, the axillary artery is a continuation of the subclavian artery. It begins at the lateral border of the first rib and terminates at the medial margin of the latissimus dorsi muscle. Beyond this its continuation receives the name of brachial artery. The entire axillary vessel measures approximately 5½ inches in length. Anatomists[2,4] usually divide it into three segments depending upon its relationship to the pectoralis minor muscle. The first, or most medial, portion measures about 1 inch in length and extends from the first rib to the medial border of the pectoralis minor muscle. The second division, about ¾ to 1 inch long, lies directly under the pectoralis minor muscle close to the insertion of the latter into the coracoid process of the scapula. This third and longest segment, from 3 to 3½ inches in length, extends from the lateral border of the pectoralis minor muscle to the inner border of the latissimus dorsi muscle.

As you may have noted, very little mention has been made of the fifth and sixth branches, namely, the anterior and the posterior circumflex humeral arteries. The reason for this is that these two vessels are, so to speak, out of bounds in the routine radical mastectomy. They are not often encountered unless they have direct communication in their origins with the subscapular artery. They are, however, very important in the collateral circulation and anastomoses in the event that the axillary artery is inadvertently or otherwise ligated or sectioned.

The axillary vein, although not dealt with directly in

Inaugural thesis.

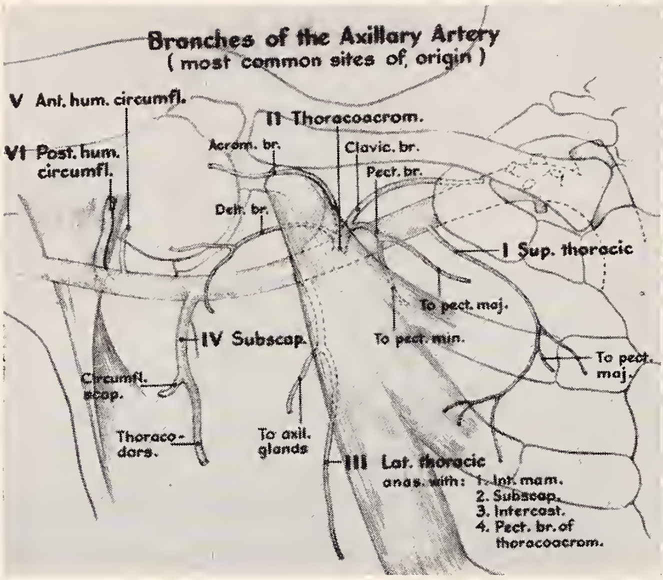

Fig. 1. Axillary artery. Most common sites of origin of its branches.

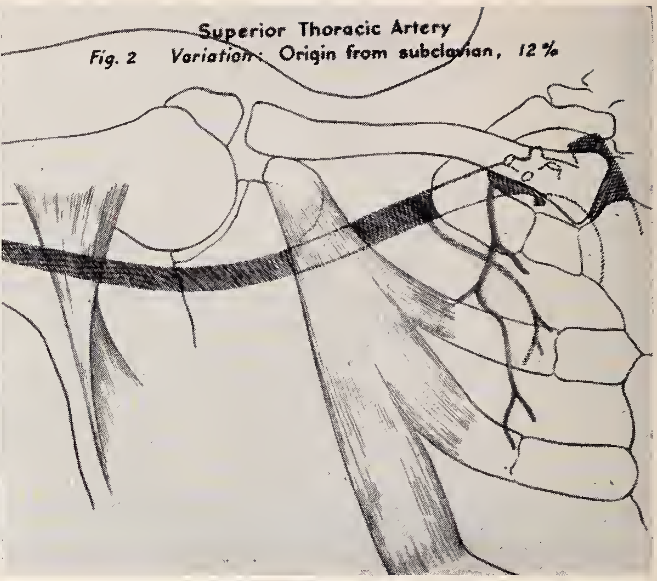

Fig. 2. Superior thoracic artery. One of its variations.

TABLE I. VARIATIONS FOUND IN THE SUPERIOR THORACIC ARTERY

Superior Thoracic Artery (a. thoracalis sup; highest thor. a.)	
Present	43 times
Absent	24 times
Usual findings: from first portion of ax	25 times
Other findings:	
a. forms thor. acr. trunk with thor. acr. and lat. thor.	1 time
b. from costocerv. trunk	1 time
c. from subclavian	8 times
d. from second port. of ax. (indepen.)	4 times
e. thor. acr. trunk (second port.)	2 times
f. from pect. br. of thor. acr. trunk (cec. pt.)	2 times
(eight times from sec. pt. of ax.)	

TABLE II. VARIATIONS WHICH WERE OBSERVED IN THE THORACOACROMIAL ARTERY

Thoracoacromial Artery (a. thoracoacromialis; acromiothoracic a.; thoracic axis)	
Relation to pectoralis minor m.	
Proximal (med. to)	19 times
Under (post. to)	47 times
Distal (lat. to)	1 time
Variations in type of origin:	
a. forms thor. acr. trunk with lat. thor.	5 times
b. forms thor. acr. trunk with lat. thor. and subscap.	2 times
c. forms thor. acr. trunk with lat. thor. and sup. thor.	1 time
d. from two trunks under pec. minor m.	2 times
e. fan-like trunk up over med. bord. p. min.	11 times
f. gives off lat. thor. as sep. branch	2 times

TABLE III. LATERAL THORACIC ARTERY AND ITS VARIATIONS

Lateral Thoracic Artery (a. thoracalis lat.; long thor. a; ext. mammary a.)	
Relation to pectoralis minor. m.	
Proximal (med. to)	3 times
Under (post. to)	52 times
Distal (lat. to)	12 times
Variations in type of origin:	
a. forms thor. acr. trunk with thor. acr.	5 times
b. forms thor. acr. trunk with thor. acr. and subscap.	2 times
c. forms thor. acr. trunk with thor. acr. and sup. thor.	1 time
d. from common trunk with subscapular	2 times
e. from subscapular	2 times

this discussion, is very important to the dissectionist or surgeon. It becomes the "landmark" in the process of exposing the axilla and its vessels. After sectioning the insertion of the pectoralis minor muscle several salient features present themselves. The axillary vein becomes the first major vessel encountered. It varies considerably in size. In some instances the lateral portion of it is so small that it could easily be mistaken for one of its branches, such as the subscapular vein. It bifurcates early in its second and third portions much more often than does the artery. This may produce unique patterns of branches and anastomoses. Finally, its position is quite inferior to the clavicle, especially in its second and third segments. This should caution one to proceed slowly and carefully while exposing and stripping it of its adjacent tissue.

Comments

There are certain comments to be made as a result of this study which should be helpful to the surgeon in performing radical mastectomy. After severing the insertion of the pectoralis minor muscle and upon opening of the coracoclavicular fascia, the axillary space is, so to speak, unlocked. The axillary vein immediately presents itself with its branches and the corresponding branches from the axillary artery. The vein lies upon and slightly below the axillary artery. It is quite inferior to the clavicle. If the pectoralis minor muscle is further freed by ligating and sectioning of the pectoral branch of the thoracoacromial artery, the axillary vessels become more clearly exposed. As dissection and stripping of the vessels progresses the following findings and variations of each axillary branch from the artery may be anticipated.

The superior thoracic artery is the smallest derivative. It is relatively unimportant and is sacrificed during the removal of the pectoralis major and minor muscles. It is apt to be present 64 per cent and absent 36 per cent of the time. When it is present and identified, it originates from the first portion of the axillary artery, the usual origin, in 59 per cent of cases. It arises from the subclavian artery 18 per cent of the time and from the second segment of the axillary artery 18 per cent of the time. In 5 per cent of dissections it will have some other origin.

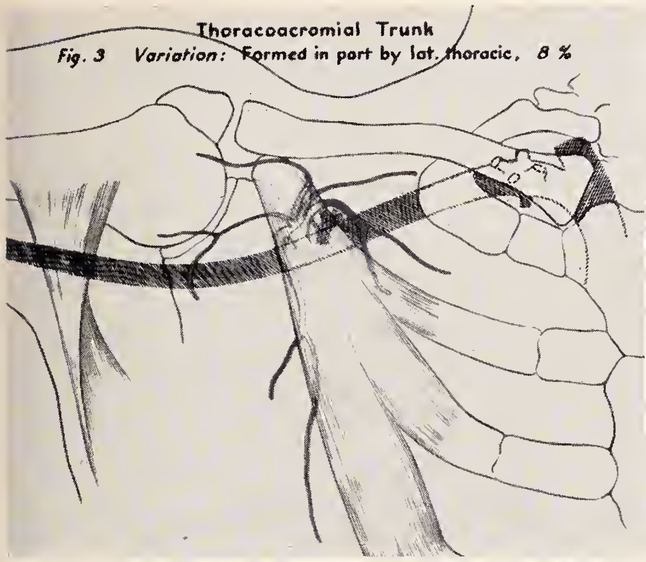
Thoracoacromial Trunk
Fig. 3 Variation: Formed in part by lat. thoracic, 8 %

Fig. 3. Thoracoacromial trunk. One of its variations.

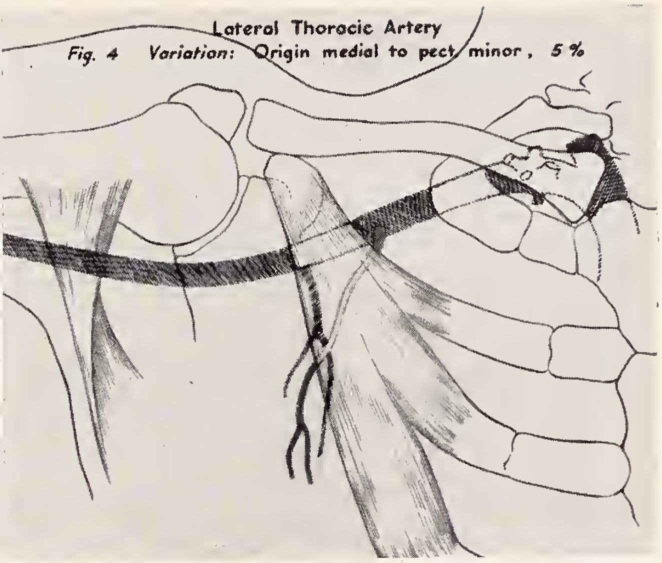
Lateral Thoracic Artery
Fig. 4 Variation: Origin medial to pect. minor, 5 %

Fig. 4. Lateral thoracic artery. One of its variations.

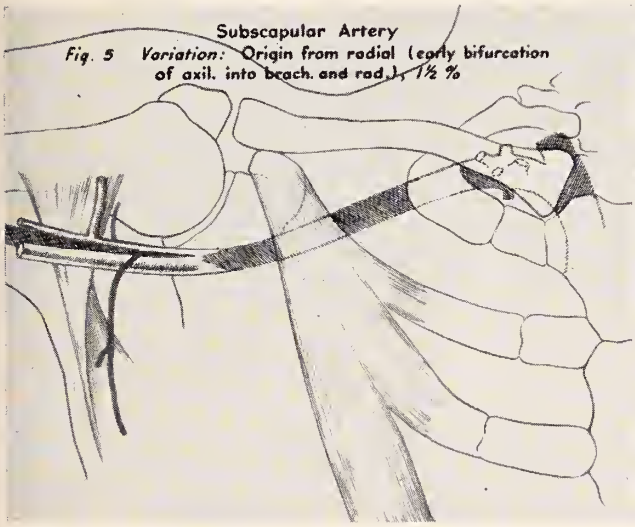
Subscapular Artery
Fig. 5 Variation: Origin from radial (early bifurcation of axil. into brach. and rad.), 1½ %

Fig. 5. Subscapular artery. One of its variations.

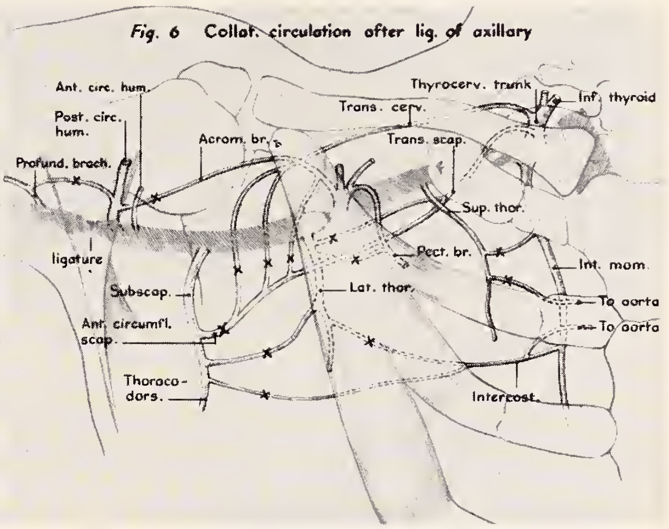
Fig. 6 Collat. circulation after lig. of axillary
Ant. circ. hum.
Post. circ. hum.
Profund. brach.
Acrom. br.
Thyrocerv. trunk
Trans. cerv.
Inf. thyroid
Trans. scap.
Sup. thor.
ligature
Pect. br.
Int. mam.
Subscap.
Lat. thor.
To aorta
To aorta
Ant. circumfl. scap.
Thoraco-dors.
Intercost.

Fig. 6. Collateral circulation after ligature of axillary artery.

The thoracoacromial artery, the second largest branch, can be expected to originate from the second portion of the axillary artery in 70 per cent of cases and from the first portion in 28 per cent of cases. It has a common origin with the superior thoracic, the lateral thoracic and the subscapular arteries 13 per cent of the time. It has variations in its manner of origin 22 per cent of the time, but these variations are relatively unimportant.

The lateral thoracic artery ultimately assumes a common course with its corresponding vein and the long thoracic nerve. It is the third largest branch from the axillary artery. It is almost always ligated and sectioned when performing radical mastectomy. It originates from the second portion of the axillary artery 77 per cent of the time. In 18 per cent of dissections it should stem from the third portion and in 5 per cent of dissections from the first part of the axillary artery.

TABLE IV. VARIATIONS IN THE SUBSCAPULAR ARTERY

This artery presented the greatest number of variations.

Subscapular Artery
(a. subscapularis)

Usual findings: single origin from third port. of ax. between lat. border p. min. and lat. dorsi	39 times
Variations:	
a. lat. to med. border of lat. dorsi. m.	5 times
b. from common tr. with lat. thor.	2 times
c. forms th. acr. tr. with th. acr. and lat. thor.	2 times
d. gives off lat. thor.	2 times
e. bif. at origin and gives off th. dor. and cir. scap.	4 times
f. same trunk as ant. and post. circumfl. humeral	5 times
g. gives off ant. circumfl. humeral	2 times
h. gives off post. circumfl. humeral	2 times
i. gives off a. and p. circumfl. humerals	1 time
j. early bif. of ax. with subsc. from radial	1 time
from brachial	2 times

The subscapular artery, in most instances, represents the lateral boundary of the axillary space. From a surgical standpoint it is the most important branch of the axillary artery to be considered during radical mastectomy. It has the greatest number of variations when compared to the others. It can usually be kept intact, but stripping it, its accompanying vein and the thoracodorsal nerve of adherent tissues is imperative. Its usual,

TABLE V. INCIDENTAL OBSERVATIONS

Cephalic Vein	
a. empties into axillary vein	48 times
b. empties into subclavian vein	16 times
c. not accurately determined	3 times
Axillary Vein (relatively large or small)	
a. large	39 times
b. small	28 times
Medial Cord (brachial plexus)	
a. Prominent	18 times
b. Not prominent	49 times

single origin from the last segment of the axillary artery and its subsequent branches into the circumflex scapular and thoracodorsal arteries may be expected in 57 per cent of cases. Eight per cent of the time it courses lateral to the medial border of the latissimus dorsi muscle. In 16 per cent of dissections the subscapular artery gives off the anterior and posterior circumflex humeral arteries either independently or by a common trunk. After an early bifurcation of the axillary artery, in 4.5 per cent of cases the subscapular artery arises from either the brachial or radial arteries. This last possibility is exceedingly important and should always be kept in mind.

The anterior and posterior circumflex humeral arteries are usually considered to be out of the field of dissection during the routine, radical amputation of the breast. However, they may have a common origin with the subscapular artery or an origin from the resulting arteries formed immediately after early bifurcation of the axillary artery in its third portion.

Summary

Sixty-seven axillae of cadavers were dissected, and a study of the axillary artery, its usual branches and their variations from the usual pertaining to radical mastectomy was made. A semischematic drawing of the collateral circulation after ligature of the various segments of the axillary artery has also been presented.

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3. Halsted, W. S.: The results of operations for the cure of cancer of the breast performed at the Johns Hopkins Hospital from June, 1889, to January, 1894. Johns Hopkins Hospital Reports, 4:297-350, 1894.
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Discussion

Dr. Carl O. Rice.—I have been very much interested in these studies of Dr. Peterson in that I have been following his work throughout the period in which he has been doing them. I am aware that he has conducted a very carefully outlined procedure of dissection.

Radical breast surgery is an anatomical dissection. It is important that the surgeon know the anatomy of the axillary region and its variations in order that he can more confidently carry out the technique of radical mastectomy.

Until one has reached the anatomical region beneath the pectoralis minor muscle, no important structures are endangered. After this area is encountered, it is well to know all of the variations, lest permanent, avoidable damage be done to nerves and blood vessels which may be encountered out of their usual normal relationship.

Dr. Peterson has illustrated the variations of anatomical relationship in this area. It will be interesting to await the publication of this paper in order that his drawings can be studied more extensively. If each of us could spend a small fraction of the time that Dr. Peterson has devoted to this study, we would be well repaid by obtaining a greater knowledge of the anatomy of the axillary region. These variations which Dr. Peterson has described cannot be learned from standard textbooks of anatomy.

I am happy to see Dr. Peterson become a member of our society on the basis of this inaugural thesis.

Dr. C. D. Haagensen, associate professor at Columbia University Medical School, New York, New York, presented a paper entitled "Surgical Technique in Carcinoma of the Breast."

William H. Rucker, M.D.
Recorder

PUBLIC RELATIONS

(Continued from Page 73)

bers may well be addressed on the various activities of the society by the chairmen of the various society committees on medical ethics, legislative activities, medical economics, voluntary health insurance and public relations. In some societies, the new members are invited several times a year to sit in with the executive committee in its deliberations. In some localities, the members of the local press are invited to dine with the society officers and members of the Public Relations Committee once or more times a year. Personal acquaintanceship leads to better understanding.

It is with a feeling of uncertainty that most of us approach the new year. We can hold ourselves responsible for our public relations as a profession. We pray for Divine guidance for those responsible for the public relations of our nation.

As in the case of other highly infectious diseases, the spread of tuberculosis can only be controlled by the isolation of the patients with active, sputum-positive infection from those who are susceptible to the disease but who have not yet contracted it. This is not being done and cannot be done among the American Indians for whom hospital accommodations are not provided by the Bureau of Indian Affairs and for whom funds are not available to expand the contractual service with non-government-operated sanatoriums—Fred T. Foard, M.D., J.A.M.A., February 4, 1950.

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RESEARCH IN THE SERVICE OF MEDICINE SEARLE

In Memoriam

WILLIAM STANFORD EMMERSON

Dr. William S. Emmerson of Waconia died on April 19, 1950, at the age of seventy-two.

Dr. Emmerson was born at Caesarea, Ontario, April 3, 1878. He obtained his medical education at the University of Minnesota, graduating in 1904. After practicing in Minneapolis a year he moved to Mayer, Minnesota. He was a member of the Scott-Carver County Medical Society, the Minnesota State Medical Association and American Medical Association.

GEORGE H. FREEMAN

Dr. George H. Freeman, superintendent of the State Sanitorium at St. Peter for twenty-three years before his retirement in 1948, died December 2, 1950, at Butte, Montana, at the age of sixty-seven.

Dr. Freeman was born at Perham, Minnesota, January 5, 1884. His medical degree was obtained from the University of Minnesota in 1905 and he interned at Ancker Hospital, Saint Paul. He joined the staff at Saint Peter Sanatorium in 1906 and remained there until 1912 when he became superintendent of the State Sanatorium at Willmar. In 1925 he became superintendent of the sanatorium at Saint Peter.

Dr. Freeman was one of the very first in Minnesota to be certified as a specialist in psychiatry, and many present leaders in the specialty received their training under him. Even after retiring in Minnesota, he continued in the field as superintendent of Montana State Hospital at Warm Springs, Montana.

Dr. Freeman was a member of the Nicollet-LeSeuer County Medical Society, the Minnesota State Medical Association, and the American Medical Association. He was also a member of the American College of Physicians and Surgeons and was a past president of the State Neurological Society.

Dr. Freeman is survived by a son, Dr. John Freeman of Rochester, Minnesota. His wife died in 1946.

A. E. HENSLIN

Dr. A. E. Henslin, a practitioner in Le Roy, Minnesota, for fifty-six years, died on November 25, 1950, at Cresco, Iowa. He was eighty-five years of age.

Dr. Henslin was born June 20, 1865 at Racine, Wisconsin. He obtained his medical education at the College of Physicians and Surgeons at Keokuk, Iowa, graduating in 1891. His internship was served at Trinity Hospital, Milwaukee. He practiced for a short time at Adams before going to Le Roy. He, along with Dr. O. H. Hegge of Austin and Dr. G. J. Schottler of Dexter, had each served his community over fifty years and were honored at a testimonial dinner given by the Mower County Medical Society in 1947.

Dr. Henslin married Mary L. Pinckney in Spring Valley in 1905. She died in 1914. One son, Dr. M. E. Henslin of Cresco, Iowa, survives him, along with two sisters.

Dr. Henslin had been a member, as well as president and treasurer, of the Mower County Medical Society for thirty years. He was automatically a member of the Minnesota State Medical Association and the American Medical Association.

CHARLES B. LENONT

Dr. Charles B. Lenont, a pioneer Mesabi Range physician, passed away November 5, 1950. He was eighty-one years of age.

Dr. Lenont was born at Northfield, Minnesota, September 30, 1869. He graduated from the University of Minnesota medical school in 1898. He practiced medicine at the Soudan Hospital for six months and then worked for two years for Dr. Harwood in the Fayal Hospital at Eveleth.

Early in 1901 Dr. Lenont moved to Virginia and the next year erected the Lenont hospital which he operated until the Virginia Municipal Hospital was opened in 1935. With the opening of this hospital, he formed the Lenont-Peterson Clinic in conjunction with Edward N. Peterson of Eveleth. Dr. Lenont remained in active practice, limiting his work to general and orthopedic surgery until his retirement in 1942.

Dr. Lenont was a fellow in the American College of Surgeons, a member of the St. Louis County Medical Society, the Minnesota State Medical Association, and the American Medical Association.

The various business enterprises which engaged Dr. Lenont's attention included the Dunka River Lumber Company of which he was president, the Stanley Mining Company, and a 1,000 acre farm in the Babbit area for the growing of potatoes.

He was much interested in curling being one of the founders of the Virginia Curling Club. He later established a trust fund to be used in furthering interest in this sport. He was a charter member and past master of the local Order of Masons, and Aad Temple, Duluth, Ancient and Arabic Order of the Nobles of the Mystic Shrine and a member of the Benevolent and Protective Order of the Elks.

In addition to the widow, Dr. Lenont is survived by one son, Stanley of Virginia; three daughters, Mrs. Emerson McNeil of Duluth, Mrs. Cedric Adams of Minneapolis, and Mrs. James Giblin of Virginia; six grandchildren, and one brother, Granville, of Livengood, Alaska.

R. C. RADABAUGH

Dr. R. C. Radabaugh of Hastings, well-known as a Republican leader in the state, died after a brief illness on November 24, 1950, at Mounds Park Hospital, Saint Paul, Minnesota.

(Continued on Page 84)

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R. C. RADABAUGH

(Continued from Page 82)

Dr. Radabaugh was born at Zumbro Falls, Minnesota, March 17, 1890. He attended high school at Rochester, Minnesota, Hamline University, the University of Minnesota and the University of Illinois, where he obtained his medical degree in 1917. After interning at the University Hospital in Chicago, he practiced in Mazeppa, Minnesota, then left his practice to serve as Lieutenant in World War I. Following his return from service, he practiced in Hastings and in Saint Paul.

Dr. Radabaugh was State Republican chairman from 1938 to 1944, leading the G.O.P. organization through three successful Minnesota campaigns. He also managed Stassen's unsuccessful bid for the presidential nomination in 1944.

He was a member of the American College of Surgeons, the Ramsey County Medical Society, the Minnesota State Medical Association, and the American Medical Association. He was also a member of the Dakota lodge, A.F.&A.M., Hastings; the Scottish Rite; Osman Temple of the Shrine, Saint Paul; Acacia fraternity, and the Phi Rho medical fraternity.

Dr. Radabaugh is survived by his wife, Lois, two daughters, Charlotte of Hastings and Virginia (Mrs. Philip Simon) of Los Angeles.

ERNEST L. STEPHAN

Dr. Ernest L. Stephan of Hinckley passed away at his home November 13, 1950.

He was born at Cleveland, Ohio, January 27, 1869, the son of Judge Daniel Stephan of the Supreme Court of Ohio, who was one of the honorary pallbearers at the funeral of Abraham Lincoln.

Dr. Stephan came to Pine County as a boy and attended the schools in Pine City, later serving as County Superintendent of Schools in Pine County. He obtained his M.D. degree from the University of Minnesota Medical School in 1893 and began practice at Hinckley in time to figure heroically in the Great Hinckley Fire of 1894, helping others and himself, escaping on the Great Northern train through the flames to Duluth. He immediately returned on the first relief train and worked for hours treating the burned and identifying the dead.

He married Clara Hay of Pine City in 1896. He is survived by one son, Angus S. Stephan, of Harris, Minnesota, and one daughter, Mrs. E. L. (Ruth) Beyer, of Kansas City. Mrs. Stephan and a foster son, Raymond, preceded him in death.

Dr. Stephan served as surgeon for both the Great Northern and Northern Pacific Railroads. He was a charter member of the Hinckley Lodge A.F. and A.M. and for many years belonged to the Modern Woodmen and the Royal Neighbors of America. He was a member of the Pine County Medical Society, the Minnesota State Medical Association, and the American Medical Association.

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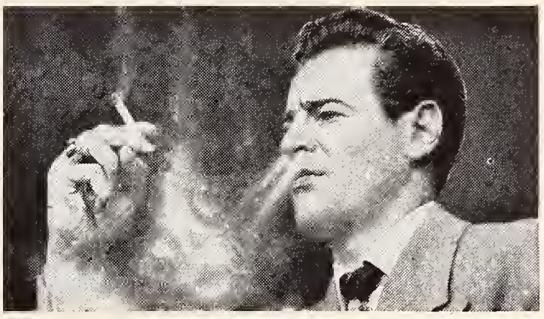

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◆ Reports and Announcements ◆

AMERICAN ACADEMY OF GENERAL PRACTICE MINNEAPOLIS CHAPTER

The annual meeting of the Minneapolis Chapter of the American Academy of General Practice was held in Minneapolis on December 11. Dr. Herman E. Drill, Hopkins, was elected president of the organization. Other officers elected include Dr. E. G. Oppen, vice president; Dr. Alexander J. Ross, secretary-treasurer, and Dr. Aaron Friedell, program chairman, all of Minneapolis.

AMERICAN COLLEGE OF PHYSICIANS

A six-day postgraduate course in peripheral vascular diseases, sponsored by the American College of Physicians, was held in Rochester November 27 through December 2. Director of the course was Dr. Walter F. Kvale of the Mayo Clinic. Principal speaker at a special dinner during the course was Dr. William S. Middleton, president of the American College of Physicians and dean of the University of Wisconsin Medical School.

WESTERN SURGICAL ASSOCIATION

The fifty-eight annual meeting of the Western Surgical Association was held in Minneapolis November 29 through December 2. Several hundred surgeons from throughout the nation watched operations in Minneapolis hospitals and attended clinics at Minneapolis General and Veterans Hospitals. A feature of the session was a group of reports on experimental work done by the University of Minnesota Department of Surgery. Forty scientific papers were presented during the meeting.

NATIONAL CONFERENCE ON MEDICAL SERVICES

The twenty-fourth annual meeting of the National Conference on Medical Services will be held February 11 in the Red Lacquer room of the Palmer House in Chicago.

The meeting is of special interest to presidents, secretaries, and public relations personnel of state and county medical societies.

FELLOWSHIP AVAILABLE

Ten fellowships supported by the Graduate College of the University of Illinois will be awarded to qualified scholars who contemplate academic careers in the medical and allied sciences. Stipends of $1,800 to $2,400 are available for medical and dental graduates with a maximum of $3,000 for unusually well-qualified applicants. Exemption from tuition fees is provided for all appointees.

(Continued on Page 88)

ANNUAL CLINICAL CONFERENCE

CHICAGO MEDICAL SOCIETY

March 6, 7, 8, 9, 1951 • Palmer House, Chicago

A conference planned to keep physicians abreast of the new things which are developed from year to year.

Special feature of the 1951 Conference—DAILY TEACHING DEMONSTRATION PERIODS from 11:00 to 12:00 noon and 1:30 to 3:00 P.M. Demonstrations will cover:

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- Organization of a Blood Bank
- Neurological Clinic
- Sterility Tests
- Speech Without Larynx
- Proper Application of Casts and Splints in Fractures
- Local Anesthesia
- Fluid and Electrolytic Balance in Surgery
- Use and Misuse of Obstetrical Forceps
- Common Problems in X-Ray Interpretations
- Laboratory Tests (Diabetes, Proper use of Insulin, Prothrombin Tests)

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Yale J. Biol. & Med.
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FELLOWSHIP AVAILABLE

(Continued from Page 86)

Registration for work toward M.S. or Ph.D. degrees is required.

Applicants need not have completed clinical internships. Minimum requirements are Bachelor's and M.D. degrees. Evidence of scholarship and promise of research ability are primary considerations. The fellowships provide an opportunity for research experience in the basic sciences and the application of these sciences to clinical investigation.

Applications must be received by February 15 with selections to be announced by April 1. Forms may be obtained from the Associate Dean of the Graduate College, University of Illinois, 808 S. Wood Street, Chicago 12, Illinois.

MINNESOTA SOCIETY OF NEUROLOGY AND PSYCHIATRY

The regular dinner meeting of the Minnesota Society of Neurology and Psychiatry was held at the Town and Country Club, Saint Paul, Tuesday, January 9, 1951.

Proposed active members ballotted upon were Drs. Jorge A. Lazarte and Sidney K. Shapiro.

The scientific program was as follows:

1. Clinical Application of the Electroencephalogram (Inaugural thesis) — V. Richard Zarling, M.D.
2. The Cardiac Risk of Electroshock Therapy (Inaugural thesis) — Clarence J. Rowe, M.D.

CANCER STUDIES

The Minnesota Department of Health is now in the process of analyzing the reports of cancer patients who were hospitalized in Minnesota during the last three years. Added to this will be an analysis of positive cancer biopsies from pathologists received during 1950. This three-year study of cancer incidence and distribution in Minnesota will furnish data for special studies on cancer to determine what may be necessary to facilitate diagnosis, treatment, and follow-up of cancer patients in many areas of the state.

There are now assembled in the files 15,000 cancer cases reported by hospitals throughout the state and over 5,000 biopsy reports of positive cases.

This study was undertaken as a time-limited project. From earlier reports already published and occasional surveys made on this data, it seems evident that there is little change in the cancer picture from year to year. In view of this observation it seems reasonable to assume that sufficient material may be on hand at the present time to give the over-all picture of cancer in Minnesota.

In consideration of the above, the Minnesota hospitals and pathologists have been asked to temporarily discontinue the reporting of cancer cases to the Minnesota Department of Health.

During the three years of the study, there has developed a co-operative spirit between hospitals, medical profession and the Minnesota Department of Health as evidenced by the fact that every hospital and all pathologists have sent reports of cancer cases. The staff of the Minnesota Department of Health working on this project is deeply grateful for the fine co-operation of all those who supplied material for the study.

CONTINUATION COURSE IN CARDIOVASCULAR DISEASES

Dr. Emile Holman, Professor of Surgery, Stanford University School of Medicine, San Francisco, will be the visiting faculty member for the course in Cardiovascular Diseases to be presented at the Center for Continuation Study on February 15 to 17, 1951. Dr. Holman will also deliver the annual E. Starr Judd Lecture in Surgery on the evening of Thursday, February 15. His subject will be "Experimental and Clinical Observations on Constrictive Pericarditis."

E. STARR JUDD LECTURE

The eighteenth E. Starr Judd Lecture will be given by Dr. Emile Holman, professor of surgery, Stanford University School of Medicine, San Francisco, on February 15 at 8:15 p.m. in the Amphitheater, Medical Sciences,

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University of Minnesota. Dr. Holman's subject is "The Surgical Treatment of Constrictive Pericarditis; Clinical and Experimental Observations."

The late E. Starr Judd, an alumnus of the Medical School of the University of Minnesota, established this annual lectureship in surgery a few years before his death.

WASHINGTON COUNTY SOCIETY

At the annual meeting of the Washington County Medical Society the following officers were elected: Dr. George McC. Ruggles, Forest Lake, president; Dr. Ray G. Johnson, Stillwater, vice president; Dr. E. Sydney Boleyn, Stillwater, secretary-treasurer; Dr. Boleyn, delegate; Dr. Wade R. Humphrey, Stillwater, alternate delegate; Dr. Johnson, censor for 1951-1953.

NATIONAL SOCIETY FOR CRIPPLED CHILDREN AND ADULTS

The National Society for Crippled Children and Adults will hold its 1951 annual convention in Chicago, October 3 through 6. Sessions will be held in the Palmer House. New techniques and new advances in the care and treatment of crippled children will be emphasized throughout the convention meetings by medical and other leaders in the specialized professional fields concerned with crippling conditions.

Woman's Auxiliary

PRESIDENT EXTENDS GREETINGS

Mrs. Charles W. Waas

To every Minnesota doctor's wife, and particularly to our own Auxiliary members, may I extend wishes that the New Year will give to each one her share of health, good fortune and happiness.

MEMBERSHIP REACHES 2,048

Mrs. John Dordal

The state treasurer was pleased and proud of the work done by all the county treasurers. To be able to meet the "deadline" with all 2,048 members paid up, was the result of splendid co-operation of the county treasurers and of some five presidents whose county treasurers were vacationing. The National President complimented Minnesota on its fine record.

Many auxiliaries have started collecting 1951 dues. Each auxiliary should try for an "every doctor's wife" membership. When all possible dues are in, please send them to the state treasurer promptly.

PROMINENT AUXILIARY MEMBER DIES

Mrs. Rachel S. Branham, wife of Dr. Donald S. Branham, St. Peter, died in Mankato on October 31, 1950. Mrs. Branham was the first president of the recently organized auxiliary of Freeborn county. The Branhams first moved to Albert Lea in 1924 where Dr. Branham practiced until 1941 when he entered active military service. The Branhams returned to Albert Lea in 1946 and continued to maintain their home there until July 1949. At that time, they moved to St. Peter, where he is now assistant superintendent of the St. Peter State Hospital. Mrs. Branham became an active member in the Nicollet-LeSueur County Medical Auxiliary after moving to St. Peter.

She is survived by her husband, Dr. D. S. Branham, a son Robert of South Saint Paul, a granddaughter, Pamela Ann, and a sister, Miss Marie Johnson, Coleraine.

PRESIDENT-ELECT REPORTS ON STATE PRESIDENT CONFERENCE

Mrs. F. P. Moersch

In November, 1950, Mrs. Charles W. Waas, state auxiliary president, and myself attended the Seventh Annual Conference of State Presidents, Presidents-Elect and National Chairmen of Standing Committees of the Woman's Auxiliary to the American Medical Association in Chicago. The theme of the conference was "Public Service Through Health Education." It was a good meeting, both stimulating and inspiring. Minnesota doctors' wives should be determined to make the Woman's Auxiliary to the Minnesota State Medical Association even more important than it is at the present time.

Mrs. Herold, Shreveport, La., National President, called the conference to order. She and Mrs. Wahlquist, Minneapolis, President-Elect of the national auxiliary, contributed a great deal toward the successful conduct of the meeting.

In addition to panel discussions by committees on organization, public relations (Mrs. Waas participated in this panel with a talk on Health Days), program, Today's Health, legislation, and reports of standing committee chairmen, talks were heard by Dr. Ernest B. Howard, Assistant Secretary of the AMA; Dr. George M. Lyons, Special Assistant of the Atomic Medicine Section and Chief Radio Isotope Section of the Veterans Administration; Dr. W. W. Bauer, Director of the Bureau of Health Education of the AMA; Dr. Thomas Hull, Director of the Bureau of Exhibits of the AMA; Ralph Greer, Director of Motion Pictures of the AMA; Miss Leone Baxter and Clem Whitaker, Directors of the National Education Campaign of the AMA.

The work of the auxiliary was praised by guest speakers, who referred to the organization as "the right arm of the AMA," and as "ball carriers for the AMA." Those attending were assured that the AMA appreciates the help it is receiving from the auxiliary members.

After taking stock of the Woman's Auxiliary to the Minnesota State Medical Association, it was felt that Minnesota has a splendid organization. All but a few counties are organized and these counties have members at large. However, in checking over the roster, it was discovered that there are many eligible women whose names do not appear as auxiliary members. Belonging to the auxiliary stimulates interests in health matters, and members can serve better as a liaison between the doctors and the public. It must be evident to all that, in these critical times when there are forces at work threatening liberties and whittling away at freedom, the auxiliary should stand back of the AMA in its fight against socialized medicine.

To the president-elect falls the duty of being organization chairman. If, therefore, any auxiliary members have problems which come under this department, please write to me.

As one of the auxiliary committee chairmen has said: "It's never too late to be what you might have been."

Best wishes for the coming New Year!

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Of General Interest

ACTH and Cortisone Contraindicated in Tuberculosis.—A warning against the use of ACTH and cortisone in patients with active tuberculosis has been issued by the Committee on Medical Research and Therapy of the American Trudeau Society, medical section of the National Tuberculosis Association.

Because of their apparent adverse effect on resistance to tuberculosis, the committee also urged that the hormones be used with "extreme caution" in persons with possible latent tuberculosis and that, as a caution, physicians examine their patients for tuberculosis before instituting hormone therapy for any cause.

The full statement follows:

"Because the action of ACTH and cortisone upon the factors of resistance to tuberculosis has been shown to be deleterious in at least three species of experimental animals (mice, guinea pigs and rabbits), and there is strongly suggestive evidence along the same lines in human beings, it is recommended that these substances *not* be used in patients with active tuberculosis, and that they be used with extreme caution even in human beings with possible latent tuberculous infection, until such time as, further investigative work has shown that such administration may be safe. The routine diagnostic examination for tuberculosis of patients under physicians' care is especially necessary for patients who are being considered for ACTH or cortisone therapy."

* * *

Dr. Philip H. Soucheray has become associated with Dr. John R. Meade in the practice of internal medicine, with offices at 836 Lowry Medical Arts Building, Saint Paul.

* * *

Dr. R. E. Carlson and **Dr. Manley F. Juergens** of Stillwater attended a course in child psychiatry at the University of Minnesota from November 27 to December 1.

* * *

Dr. Dean Sherwood Luce of Canton, Massachusetts, was chosen by the AMA delegates at Cleveland in December as the family doctor of 1950. Dr. Luce, at the age of seventy-four, is still answering calls day and night and has been since 1905 when he first put out his shingle in Canton.

* * *

It was announced on November 29 that **Dr. Wallace R. Anderson,** a former pediatrician at the Austin Clinic in Austin, was en route to Japan in Army service. Dr. Anderson, who held a commission in the Naval Reserve, had been called to active duty about two weeks previously and assigned to duty with the Army.

* * *

Dr. John Briggs, Saint Paul, spoke on the subject of cardiac arrhythmias at a meeting of the Minnesota Society of Anesthesiologists in Saint Paul on December 2.

* * *

Dr. Wade R. Humphrey of Stillwater recently returned from a visit to his native state, Virginia.

* * *

Dr. Walter Eisenman, formerly of Coleraine, has begun a fellowship in obstetrics and gynecology at the Mayo Foundation in Rochester.

* * *

Dr. and Mrs. J. F. Weir returned to Rochester late in November after a three-month tour of Europe. Dr. Weir, head of a section in medicine at the Mayo Clinic, attended the First International Congress of Internal Medicine in Paris and visited clinics and hospitals throughout Europe.

* * *

The new coroner for Todd County is **Dr. A. J. Lenarz** of Browerville, who won the office in the November general election when his name was written on the ballot by many of his friends. No candidate had filed for the office. Dr. Lenarz, a graduate of Marquette University, has practiced in Browerville since 1936.

* * *

On December 1, **Dr. R. I. Gruys** dissolved his partnership with the Cottonwood County Clinic and established his own practice in Windom. Dr. Gruys has practiced in Windom since July, 1949.

* * *

Dr. Benjamin Spock, former Mayo Clinic staff member, has joined the University of Pittsburgh Mental Health Center. At Rochester Dr. Spock was co-director of the Rochester Health Institute. At Pittsburgh he will be professor of child development and a staff member in the Department of Pediatrics at Children's Hospital and the Graduate School of Public Health.

* * *

December 10 was Appreciation Day at Buffalo Lake when local residents gathered to honor **Dr. E. C. Gaines** for his fifty years of medical service in the area. The day's festivities included a banquet at noon, an afternoon program of talks and music, an "open-house" supper, and an evening of visiting and renewing old acquaintances.

Dr. Gaines is a graduate of the University of Minnesota Medical School. He moved to Buffalo Lake from Steen in November, 1900.

* * *

It was announced on November 30 that **Dr. Harold S. Orwoll** of St. Peter had enlisted in the medical corps of the Navy and had moved to Decorah, Iowa,

(Continued on Page 94)

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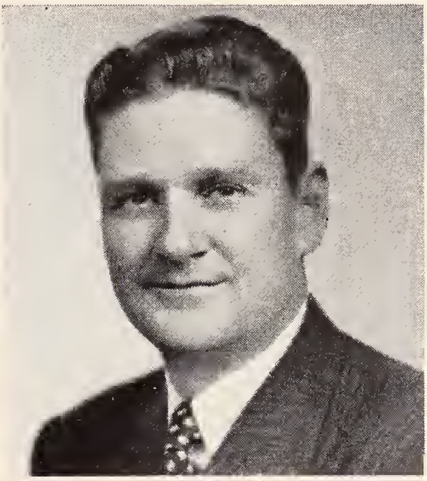

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(Continued from Page 92)

to await orders to active duty. Shortly before he joined the Navy Dr. Orwoll had been elected county coroner.

* * *

Dr. I. L. Mitby, formerly of Aitkin, has opened offices for the practice of medicine at 7634 Lyndale Avenue South, Richfield (Minneapolis suburb). Dr. Mitby was in practice at Aitkin for twelve years.

* * *

Dr. E. T. Rechlitz, who was associated with Dr. F. G. Folken in the Folken Clinic at Albert Lea since 1948, has moved to Beloit, Wisconsin, to open his own practice. Dr. Rechlitz is a graduate of the Marquette University School of Medicine.

* * *

Five **Mayo Clinic** staff members officially retired at the annual meeting of the staff in Rochester on November 20. They are Dr. W. L. Benedict, Dr. A. C. Broders, Dr. N. M. Keith, Dr. G. B. New and Dr. R. M. Wilder. Together the five had served a total of 169 years with the clinic.

At the election of staff officers Dr. Paul A. O'Leary was elected president, Dr. A. C. Davis, vice president, and Dr. N. B. Coventry, secretary.

* * *

In Annandale the front of the office of **Dr. Lester H. Bendix** has been remodeled. The new front is more modern in appearance, with aluminum-trimmed windows set in a brick facing.

* * *

Dr. John W. Helland of Spring Grove was presented with a special plaque, in recognition of his twenty years of service to the Houston County Christmas Seal organization, at the annual meeting of the Houston County Farm Bureau in Spring Grove late in November.

* * *

Dr. E. S. Boone, formerly with the Veterans Administration in Sioux Falls, South Dakota, began practicing medicine at Luverne just after January 1.

* * *

Dr. Philip S. Hench and **Dr. Edward C. Kendall,** both of Rochester, and **Dr. Thaddeus Reichstein,** Swiss professor, were presented with the Nobel Prize in medicine at ceremonies in Stockholm, Sweden, on December 10. The award was made by King Gustav VI.

On December 13, Dr. Hench crowned the Swedish queen of Christmas, Lucia, at a special festival. The honor of placing the crown was given to Dr. Hench since funds raised at the festival will be used for research for rheumatic children.

* * *

In November residents of Carlton and the surrounding area launched a campaign to forestall possible recall into military service of **Dr. E. A. Pasek,** the only physician in the community. They asked for deferment of Dr. Pasek, a veteran of World War II, on the grounds that he is essential to the health and welfare of the community.

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Dr. L. R. Gowan **Dr. C. M. Jessico**
Dr. J. E. Haavik **Dr. L. E. Schneider**

Dr. Eivind Klaveness, Saint Paul, celebrated his eightieth birthday on November 25. He announced that he had no intention of ever retiring from active practice.

* * *

Dr. Karl Pfuetze has resigned as medical director and superintendent of the Mineral Springs Sanatorium, effective January 15, to become medical director and superintendent of a new 500-bed tuberculosis hospital now under construction at the University of Illinois Medical Center in Chicago.

Dr. Pfuetze joined the staff of the Mineral Springs Sanatorium in 1940 as assistant to the late Dr. William Beadie, then superintendent. When Dr. Beadie resigned in 1941, Dr. Pfuetze was named acting superintendent. His appointment as superintendent and medical director came a few months later.

* * *

Dr. Russell M. Wilder, who recently retired as professor of medicine and head of a section in medicine at the Mayo Clinic, has taken a position with the United States Public Health Service.

* * *

Dr. Edward C. Sargent of Austin spoke on the subject of cancer over station KAUS, Austin, on November 30. The talk was sponsored by the Mower County Cancer Society.

* * *

A community celebration was held in Fisher on November 26 to honor **Dr. William H. Hollands** for his forty-one years of medical service in the area. Dr. Hollands began his practice in Fisher in 1909, immediately after he had completed his medical training. He has always been active in community affairs and has served as health officer and as mayor for two terms.

* * *

Dr. John E. Teisberg has become associated in the practice of industrial medicine and surgery with Dr. Robert J. Richardson. Their offices are located at 2395 University Avenue, Saint Paul.

* * *

Dr. John R. Fischer, Owatonna, was elected Steele County coroner by a write-in vote of more than 1,000 during the general election in November. No candidate filed for the office.

A graduate of the Washington University School of Medicine, Dr. Fischer has been practicing in association with Dr. J. A. McIntyre in Owatonna since July.

* * *

Dr. Louis B. Woolner, Rochester, spoke on "Primary Hyperparathyroidism: A Study of 112 Consecutive Cases" at a meeting of the Minnesota Pathological Society at the University of Minnesota on November 21.

HOSPITAL NEWS

The results of recent elections of hospital staff officers at three Minnesota hospitals are as follows:

St. John's Hospital, Saint Paul.—Dr. Herbert L.

(Continued on Page 98)

Storm Warning

MANY women see but do not identify the first disturbing signs of the menopause, and therefore reach their physicians' consulting rooms in double trouble—with anxiety superimposed upon the original symptoms.

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Surgical Technic, Surgical Anatomy and Clinical Surgery, four weeks, starting February 5, March 5.
Surgical Anatomy and Clinical Surgery, two weeks, starting February 19, March 19.
Surgery of Colon and Rectum, one week, starting March 5.
Basic Principles in General Surgery, two weeks, starting April 2.
Gallbladder Surgery, ten hours, starting April 23.
Fractures and Traumatic Surgery, two weeks, starting March 19.

GYNECOLOGY—Intensive Course, two weeks, starting February 19.
Vaginal Approach to Pelvic Surgery, one week, starting March 5.

OBSTETRICS—Intensive Course, two weeks, starting March 5.

MEDICINE—Intensive General Course, two weeks, starting April 23.
Gastro-enterology, two weeks, starting May 14.
Gastroscopy, two weeks, starting March 5.
Electrocardiography and Heart Disease, two weeks, starting March 19.

PEDIATRICS—Intensive Course, two weeks, starting April 2.
Informal Clinical Course every two weeks.

UROLOGY—Intensive Course, two weeks, starting April 16.
Cystoscopy, Ten Day Practical Course, every two weeks.

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(Continued from Page 96)

Stolpestad, chief-of-staff; Dr. C. Kenneth Cook, assistant chief-of-staff; Dr. Robert W. Emmons, secretary.

Abbott Hospital, Minneapolis.—Dr. W. W. Rieke, Wayzata, chief-of-staff.

Mount Sinai Hospital, Minneapolis.—Dr. Moses Barron, president; Dr. Max Seham, vice president; Dr. Samuel Balkin, secretary-treasurer.

* * *

Dedication ceremonies for the **Dr. Henry Schmidt Memorial Hospital** at Westbrook were held on November 26. The dedication address was given by Dr. George A. Earl of Saint Paul. Tours were conducted through the new structure, and lunch was served to visitors.

* * *

Dr. Karl S. Klicka, formerly of Mount Vernon, New York, has become medical director of **St. Barnabas Hospital** in Minneapolis. He previously was director of the Woman's Hospital in New York City. A graduate of Western Reserve University, Dr. Klicka took advanced training in hospital administration at the University of Chicago.

* * *

The **Murray County Memorial Hospital** at Slayton was dedicated on December 12, with Governor Luther Youngdahl as the principal speaker. The modern forty-eight-bed hospital is X-shaped in design and can be expanded by future construction to a maximum of seventy-two beds.

* * *

A birthday party for the thirty-year-old **Charles T. Miller Hospital** in Saint Paul was held on December 6. Attending the party were employes, trustees and the medical staff of the hospital, which was founded on December 1, 1920. Among the entertainment was a showing of motion pictures taken by Dr. Vernon Smith of Saint Paul.

* * *

A group of residents of Red Lake Falls met on November 13 to formulate plans for a campaign to raise funds to equip and furnish the new **St. John's Hospital** at Red Lake Falls. An advisory committee was formed, and plans were made to select key leaders at a future meeting.

* * *

St. Barnabas Hospital in Minneapolis has established a medical photographic laboratory, believed to be the only full-time, completely equipped department of its kind in Minnesota outside of the University of Minnesota Hospitals. In charge of the laboratory is Leslie Hier, Jr., a trained medical photographer. The laboratory is housed on the first floor of one of the hospital's buildings.

BLUE CROSS—BLUE SHIELD NEWS

Physicians of Minnesota should be interested in knowing that for the past two months over 6000 claims for medical service have been paid by Blue Shield each month. Prior to that time the highest monthly case load slightly exceeded 4900. In addition to these claims paid, however, were some 600 claims which were rejected, and the item most frequently responsible for rejection was that the claimant was not a Blue Shield subscriber.

Of the 6,009 cases, 4,403 were for hospitalized patients and 1,606 were for compensable services rendered in the physician's office. The total payment was $205,167.76 for care rendered in the hospital and $22,562.20 was for office care.

Participating doctors of medicine received $39,317.15 for 1,774 medical cases, $138,720.82 for 3,297 surgical cases and $35,399.00 for 660 obstetrical deliveries. Minnesota non-participating doctors of medicine received $1,437.72 for 46 medical cases, $5,674.49 for 78 surgical cases and $360.00 for 51 obstetrical deliveries. Physicians practicing out of the state of Minnesota were compensated for 147 cases in the amount of $6,820.75.

Blue Shield enrollment for October 1950 increased by 7,407 participant subscribers or 2,516 contracts. The total contracts in effect as of October 31 was 147,505 and the total number of persons covered was 385,512. On October 31 Minnesota Blue Cross had 377,295 contracts in effect with 1,023,572 participants.

The number of medical forms received daily varies from approximately 250 to 400. In addition there is a considerable amount of correspondence relative to general Blue Shield information and inquiries as to our method of determining payment. Due to the volume of inquiries and also the similarity of reply in many instances it has seemed expedient and economical to utilize form letters insofar as possible. However, at such time as the work load and assignment of trained personnel permits, every effort will be made to personalize the greater part of Blue Shield correspondence.

Much consideration is being given to the question of foreknowledge. The Blue Shield contract excludes benefits for the first ten months of the contract for the treatment of a condition known by the subscriber or any of his dependents to exist at the time the contract is applied for. Medical history on such claims is obtained from the attending physician; medical history of previous care will also be requested from the subscriber. The determining factor in such cases is not the knowledge of the need for surgery or treatment, but the knowledge of the existence of the condition.

At this time Blue Shield wishes to extend to the medical profession every good wish for a happy and successful New Year and to express our appreciation for its co-operation and assistance in the past.

We need to teach people not only how to avoid tuberculosis, how to recover from tuberculosis and how to stay recovered, but also how to be healthy and how to make the most of life. . . . We cannot do an effective job in tuberculosis unless we do also a thoroughly good job of health education—that is, education in health.—Iago Galdston, M.D., Nat. Tuberc. A. Tr., 1949.

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BOOK REVIEWS

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Books Received for Review

METHODS IN MEDICINE. The Manual of the Medical Service of George Dock., M.D., Sc.D., Second Edition. George R. Herrmann, M.D., Ph.D., Professor of Medicine, University of Texas Medical Branch of Galveston; Director of the Cardiovascular Service and Heart Station, University of Texas Hospitals; Consultant in Medicine to the Surgeon General, U. S. Army; Consultant in Vascular Diseases to the Marine Hospital, U.S.P.H.S. 488 pages. Price $7.50, cloth. St. Louis: C. V. Mosby Co., 1950.

ADVANCES IN INTERNAL MEDICINE. Volume IV. Editors: William Dock, M.D., Long Island College of Medicine, Brooklyn, N. Y., and I. Snapper, M.D., Mount Sinai Hospital, New York, N. Y. 549 pages. Illus. Price $10.00, cloth. Chicago: Year Book Publishers, 1950.

OBESITY. Edward H. Rynearson, M.D., F.A.C.P. Division of Medicine, Mayo Clinic. Associate Professor of Medicine, Mayo Foundation; and Clifford F. Gastineau, M.D., Fellow in Medicine, Mayo Foundation, Rochester, Minnesota. 134 pages. Illus. Price $3.50, cloth. Springfield, Illinois: Charles C Thomas, 1949.

HELP YOURSELF TO BETTER SIGHT. Margaret Darst Corbett. 218 pages. Illus. Price $2.50, cloth. New York: Prentice-Hall, Inc., 1949.

HOW TO BECOME A DOCTOR. A complete guide to the study of medicine, dentistry, pharmacy, veterinarian medicine, occupational therapy, chiropody and foot surgery, optometry, hospital administration, medical illustration and the sciences. George R. Moon, A.B., M.A. Examiner and Recorder, University of Illinois Colleges of Medicine, Dentistry and Pharmacy. 131 pages, Illus. Price $2.00, cloth. Philadelphia: Blakiston Co., 1949.

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SIR WILLIAM OSLER. *Aphorisms from his Bedside Teachings and Writings.* Collected by Robert Bennett Bean, M.D. Edited by William Bennett Bean, M.D. 159 pages. Price, $2.50. New York: Henry Schuman, Inc., 1950.

To be the "Boswell" to Sir William Osler would be a labor of love under any circumstance. The Doctors Bean have accomplished their task admirably in this collection of aphorisms. Osler's humanistic approach to medicine has rarely been equaled. His writings could be cosmopolitan, sophisticated, or humorous, but always pertinent to the occasion. Unfortunately, taking a phrase out of the whole text often makes the statement trite or does not convey the whole meaning. The authors hope that these aphorisms will spur the reader into reading the whole essay from which they were taken.

This little volume should have wide appeal.

C. E. Rea, M.D.

THE NATIONAL FORMULARY. Ninth Edition. Prepared by the Committee on National Formulary, under the supervision of the Council by authority of the American Pharmaceutical Association. Official for November 1, 1950.

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The National Formulary contains no secret drug nor is any drug admitted under a proprietary or trade-mark name or if the composition or process of manufacture is secret. No claims are made for therapeutic value of any of the items contained.

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C. B. D.

PRINCIPLES AND PRACTICE OF SURGERY. By Jacob K. Berman, A.B., M.D., F.A.C.S., Associate Professor of Surgery, Indiana University School of Medicine; Associate Professor of Oral Surgery, Indiana University School of Dentistry; Chief Consultant in Surgery, Billings V. A. Hospital, Ft. Benjamin Harrison, Ind.; Director of Surgical Education and Surgical Research, Indianapolis General Hospital. 1378 pages. Illus. Price $15.00. St. Louis: C. V. Mosby Co., 1950.

This is a new textbook of surgery which the student will find unique because of two features. The first is its emphasis on basic sciences and their correlation with surgical principles. Second is the author's style, borrowed from Hippocrates who taught by aphorisms or maxims, concise statements of principle. This imparts a somewhat choppy quality to the text but will be attractive to the student in his quest for "pearls."

The book includes a short historical review followed by several chapters on the local response of tissues to various forms of injury such as trauma and infection. Fluid balance, hemorrhage and shock are dealt with extensively. The subsequent review by systems is detailed and adequate with the possible exception of the chapter on bones and joints which omits any description of fractures.

Tables, illustrations, and microphotographs are excellent, and scattered throughout are sketches of operative technique in sufficient detail to give the student some idea of surgical treatment. This is a feature generally not found in standard texts.

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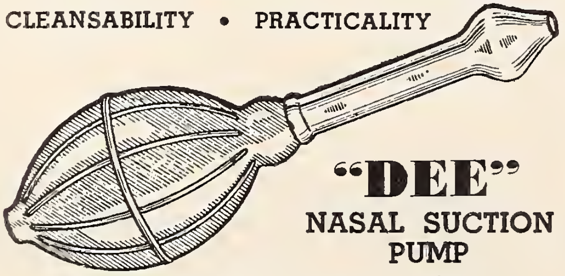

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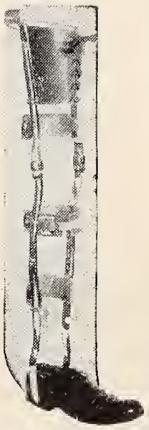

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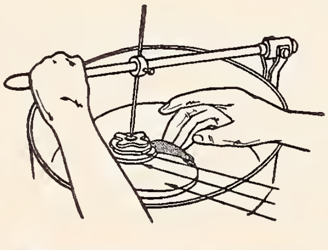

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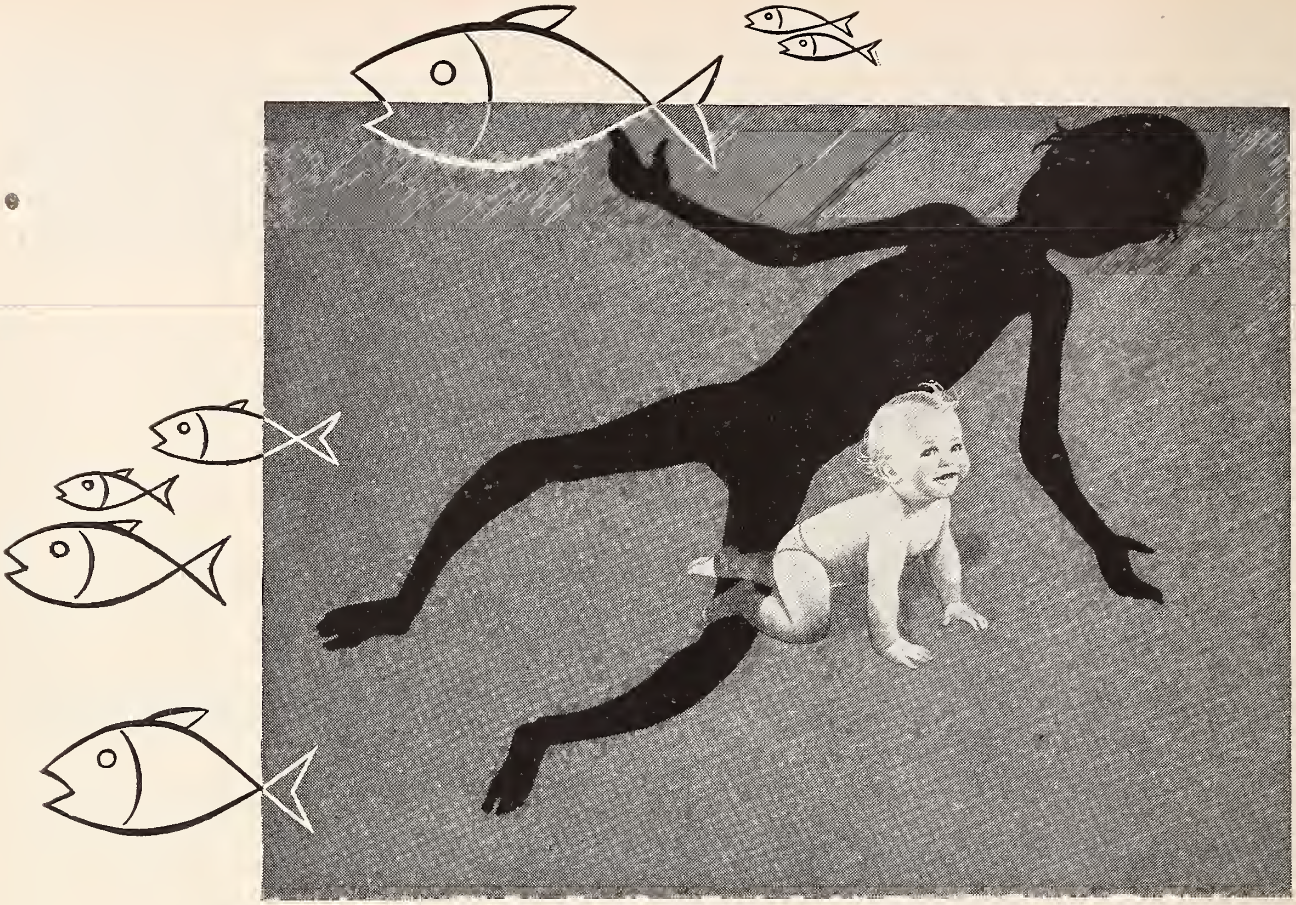

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Bibliography

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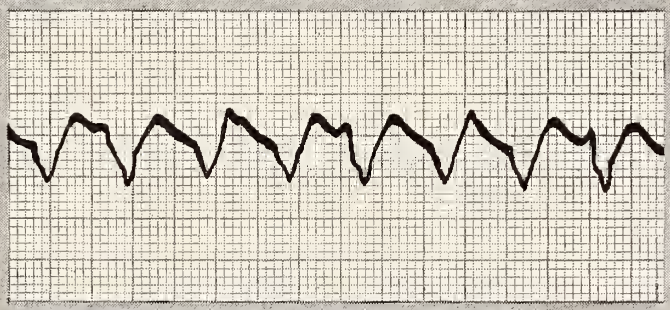

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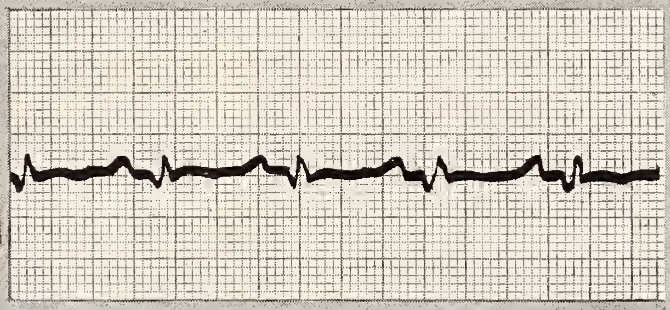

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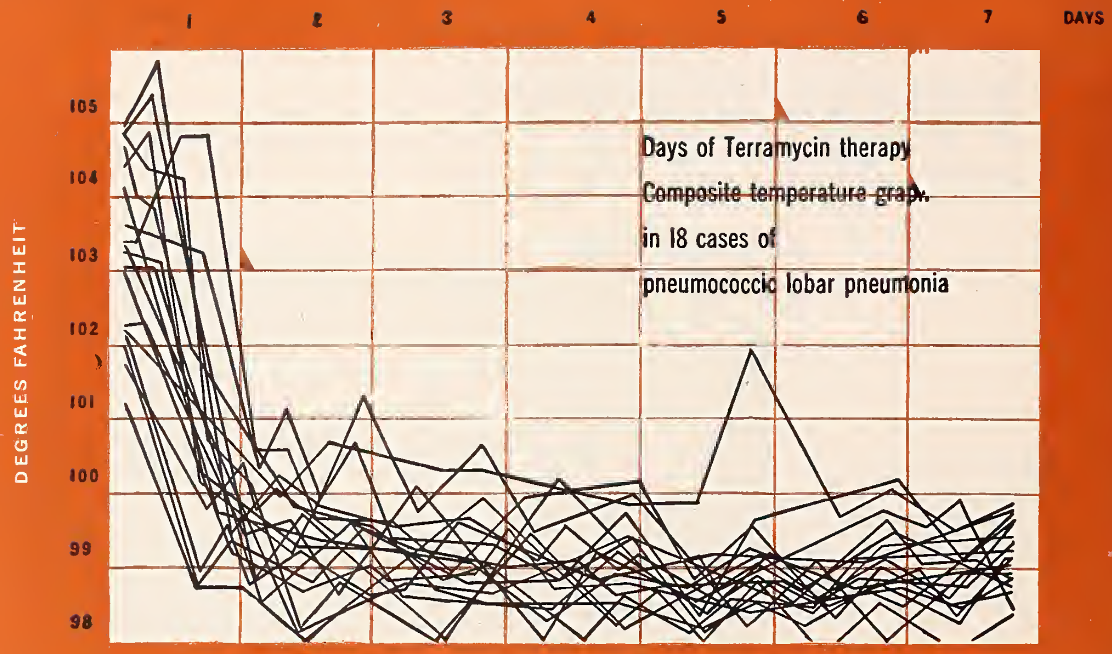

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PHYSICIANS AND HOSPITALS SUPPLY CO., Inc.
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INSTRUMENTS · TRUSSES · EQUIPMENT · PHARMACEUTICALS · DRUGS
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MEAT...and the PROTEIN NEEDS of the DIABETIC

Not less but *more protein* than the traditional gram per kilo of body weight recommended for the non-diabetic individual promotes an increased sense of well-being in the diabetic patient. Liberal amounts of biologically excellent protein, such as that provided by *meat,* are therefore especially useful in dietotherapy.

For supporting the well-being and vigor of the patient, increasing his resistance to infection, and minimizing many of the degenerative changes common in diabetes mellitus, maintenance of body protein reserves is particularly important.[1, 2] The former belief that protein foods, especially meat, engender hypertension and arteriosclerosis, is no longer tenable. On the contrary, deficits in dietary protein are apt to initiate anemia, hypoproteinemia, and retrogressive processes in the kidneys and other organs or tissues.

Ample amounts of high-quality protein foods in the prescribed diet—including generous amounts of meat—are important for maintaining a good nutritional state in the diabetic patient. Such a diet provides the nutritional essentials required in overcoming infections and in prompter healing of traumatic wounds.

Meat, however, is valuable to the patient for more than just its biologically excellent protein. It also furnishes important amounts of iron, thiamine, riboflavin and niacin, and of the newly discovered vitamin B_{12} which, among its several functions, promotes efficient utilization of protein.

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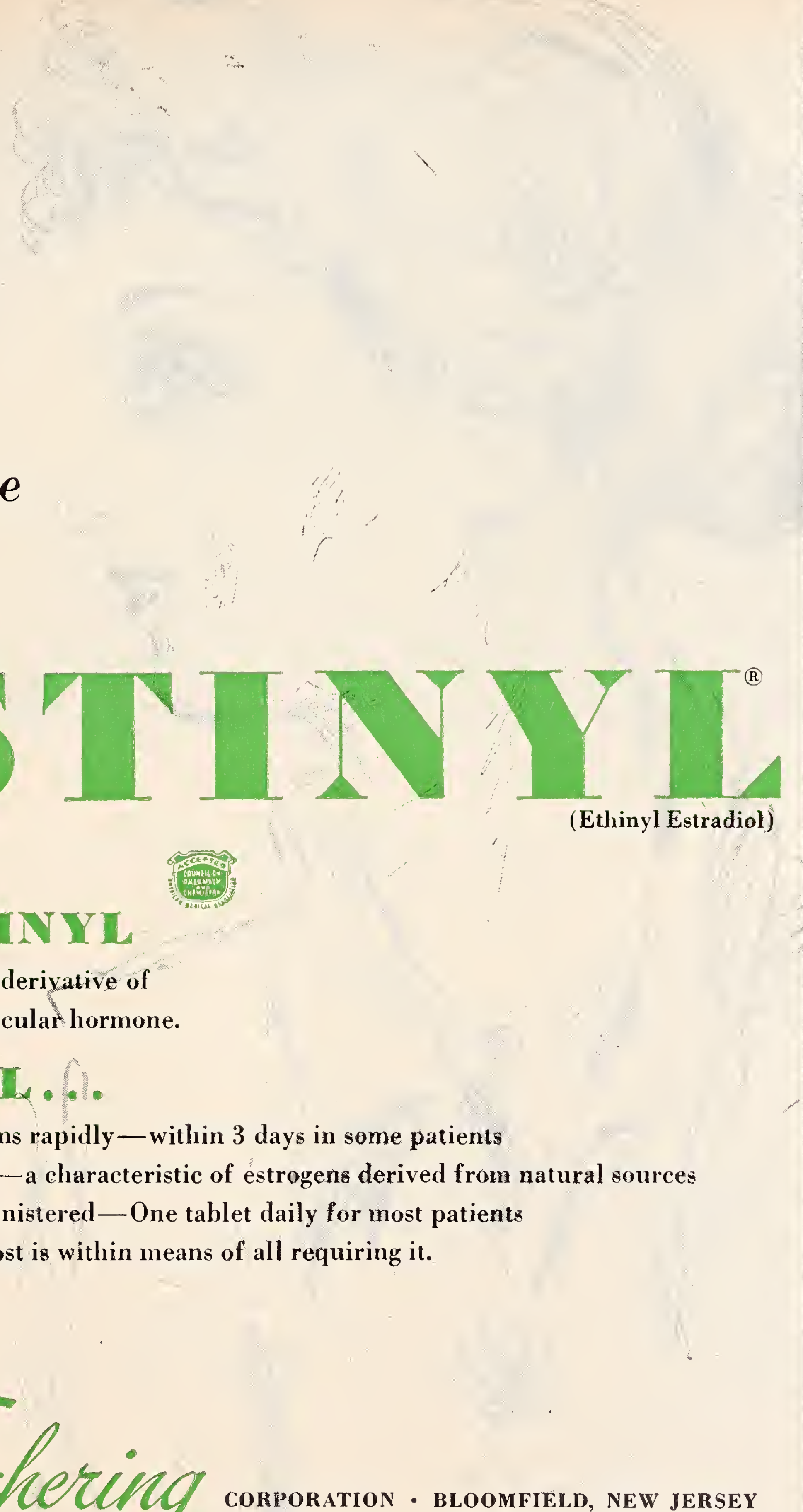
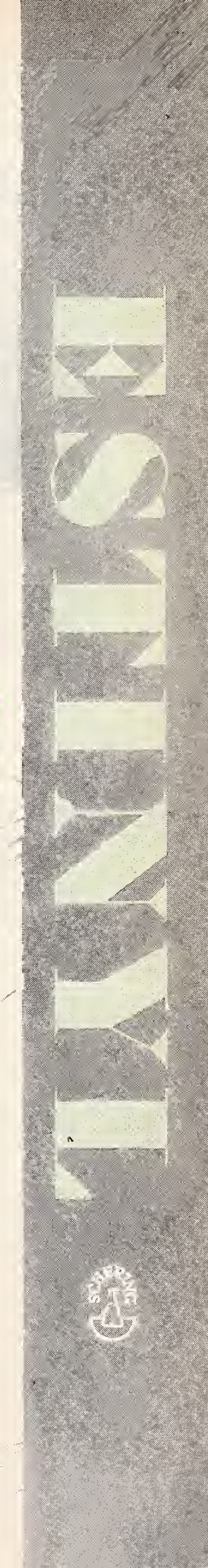
(1) Mosenthal, H. O.: Management of Diabetes Mellitus: An Analysis of Present-Day Methods of Treatment, Ann. Int. Med., 29:79 (July) 1948.

(2) McLester, J. S.: Nutrition and Diet in Health and Disease, 5th ed., Phil., W. B. Saunders Company, 1949, page 364.

The Seal of Acceptance denotes that the nutritional statements made in this advertisement are acceptable to the Council on Foods and Nutrition of the American Medical Association.

American Meat Institute
Main Office, Chicago...Members Throughout the United States





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ESTINYL®

(Ethinyl Estradiol)

ESTINYL

hinyl estradiol, a derivative of
natural follicular hormone.

ESTINYL . . .

Relieves symptoms rapidly—within 3 days in some patients
vides a "real lift"—a characteristic of estrogens derived from natural sources
Is simply administered—One tablet daily for most patients
s economical—cost is within means of all requiring it.

Schering CORPORATION · BLOOMFIELD, NEW JERSEY

CAMP Scientific Support Fitting Courses stress the importance not only of theory but also the practical application of knowledge in clinical "workshops." Above is shown a group of fitters being instructed in the practical fitting of a patient (pendulous figure type) with a Camp orthopedic back brace.

A BASIC CAMP CREDO

"Education before Sales"

"How skilled is the fitter who assumes the duty of carrying out my instructions when I prescribe a scientific support?"

Camp Scientific Supports are sold and fitted in reputable stores in your community.

Every physician is justified in asking that question.

This year will mark the 23rd annual series of Camp Scientific Support Fitting Courses under medical supervision. Beginning in New York City, they will be held in principal cities throughout the nation. Estimated enrollment will include over a thousand representatives from reliable stores in all parts of the country. These courses are conducted by our Training Director, Medical Director, Designer and a staff of registered nurses. In addition to the formal sessions the nurses are constantly instructing smaller groups and individuals in countless other cities.

Since 1929 we have trained more than 16,000 fitters in the United States and Canada. That is why Camp research, Camp design and Camp craftsmanship can provide the ultimate in service to the patient.

S. H. CAMP and COMPANY, JACKSON, MICHIGAN

World's Largest Manufacturers of Scientific Supports

Offices in New York • Chicago • Windsor, Ontario • London, England

When Lactation Fails

℞ LACTOGEN®

When the supply of breast milk is inadequate or when lactation fails entirely, there is no better formula than Lactogen. Designed to resemble mother's milk, it consists of whole cow's milk modified with milk fat and milk sugar. It differs, however, in one important respect: the protein content of Lactogen in normal dilution is one-third greater than that of mother's milk—2.0% instead of 1.5%.

A Complete Infant Formula In One Package

Lactogen contains all the ingredients of a well-balanced infant formula. In addition, it is fortified with iron to compensate for the deficiency of this mineral in milk.

Easily Prepared . . . Merely Add Water

Lactogen is simple to use. The prescribed amount is stirred into warm, previously boiled water. Either a single feeding can be prepared, or the entire day's quantity can be made up and stored in the refrigerator until used.

THE NESTLÉ COMPANY, INC.
COLORADO SPRINGS, COLORADO

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AMERICAN MEDICAL ASSOCIATION

NOTABLY HIGH IN PROTEIN CONTENT
Lactogen contains a generous amount of protein . . . more than enough to satisfy every protein need of the rapidly growing infant.

Nothing Competes with the Lure of Sweets

Use it in Sulfonamide Therapy

Tasty Suspension with "Built-In" Alkalinizer

Palatable, orange-flavored DUOZINE Suspension provides, per teaspoonful, 0.15 Gm. each sulfadiazine and sulfamerazine, plus 1.5 Gm. sodium citrate. It's especially good-tasting when diluted in water or fruit juice. In 1-pint bottles.

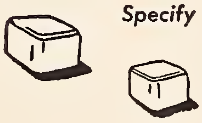
YOU'LL pave the way for successful sulfonamide therapy when you appeal to small fry with candy-like, good-looking DUOZINE *Dulcet* Tablets. These medicated cubes not only taste but look like a treat—there's nothing about them to remind children of medicine.

But here disguised is a stable, uniformly potent sulfadiazine-sulfamerazine combination (equal parts). These drugs, according to a recent report[1], " . . . qualify at present for first and second place, respectively, as components of any mixture."

With DUOZINE *Dulcet* Tablets, mother can administer accurate dosage merely by counting out the prescribed number of tablets. Dosage can also be readily adjusted to adult needs, and you'll find many grown-ups who prefer this tasty medication to ordinary tablets.

The next time sulfonamides are indicated why not combine treat and treatment? DUOZINE *Dulcet* Tablets in 0.3-Gm. and 0.15-Gm. potencies, bottles of 100. Abbott

[1] LEHR, D. (1950), RELATIVE MERITS OF COMMONLY USED SULFONAMIDE DRUGS AS COMPONENTS OF MIXTURES, N. Y. STATE J. MED., 50:1361, JUNE.



Specify Duozine TRADE MARK Dulcet® Tablets

(SULFADIAZINE-SULFAMERAZINE COMBINED, ABBOTT)

®MEDICATED SUGAR TABLETS, ABBOTT

How mild can a cigarette be?

● Every day, more and more smokers—and among them many, many doctors—are discovering for themselves just how mild a cigarette can be. They're making their own 30-Day Camel Mildness Tests—smoking Camels regularly for 30 days.

It's a sensible cigarette test. As a doctor, you know there can be no valid conclusion drawn from a one puff comparison—from a trick test that calls for hasty decisions. The Camel 30-Day Test asks you to make a day after day, pack after pack comparison.

If you are not already a Camel smoker, why not try this test? Judge Camel mildness and the rich, full flavor of Camel's choice tobaccos in your own "T-Zone"—the real proving ground for a cigarette. See if the Camel 30-Day Test doesn't give you the most enjoyment you've ever had from smoking!

Make your own 30-Day Camel Mildness Test in your own "T-Zone"— That's T for Throat, T for Taste. See if you don't change to Camels for keeps!

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TURKISH & DOMESTIC BLEND CIGARETTES
CHOICE QUALITY

R. J. Reynolds Tobacco Company
Winston-Salem, North Carolina

More People smoke Camels

THAN ANY OTHER CIGARETTE!

At Your Finger Tips — THE NORTHWEST'S

MOST COMPLETE DRUG STOCK

One of the largest stocks of ethical drugs, medical and surgical supplies and equipment is right at your fingertips—for ours is one of the few such complete services of its kind.

The personnel of our large drug department is constantly watching for new pharmaceuticals, chemical compounds, and related products to be added to the stock, enabling us to fill your order promptly.

When in need of any item, all you have to do is drop us a line, or if urgent, wire or phone us and your order is on its way.

No matter what your requirements may be . . . in any emergency, remember P & H . . . we are ready to serve you day or night.

M-251

PHYSICIANS & HOSPITALS SUPPLY COMPANY, INC.

MINNEAPOLIS 15 412-418 South Sixth Street MINNESOTA

All Children Can Benefit from
this Hot Drink at Breakfast

The problem of encouraging children to eat an adequate breakfast finds easier solution when Ovaltine in hot milk is recommended as a breakfast beverage. Many children clamor for a hot drink at the morning meal and Hot Ovaltine is the right kind of drink to recommend.

A cup of Hot Ovaltine makes an excellent contribution of virtually all essential nutrients, adding substantially to the nutritional start for the day. It also serves in a gustatory capacity by enhancing the appeal of breakfast and making other foods more inviting.

The nutrient contribution made by a cup of Ovaltine is apparent from the table below. Note the wealth of essentials added to the nutritional intake by making the simple recommendation of adding a cup of Hot Ovaltine to the child's breakfast.

THE WANDER COMPANY, 360 N. MICHIGAN AVE., CHICAGO 1, ILLINOIS

OVALTINE
Sweet Chocolate Flavored
OVALTINE
FOOD SUPPLEMENT

Ovaltine

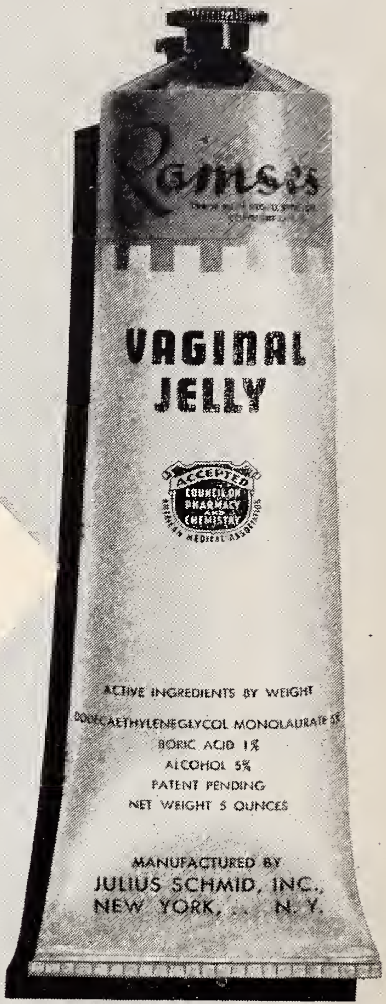
Here are the nutrients that a cupful of hot Ovaltine, made of ½ oz. of Ovaltine and 8 fl. oz. of whole milk,* provides:

PROTEIN	10.5 Gm.	IRON	4 mg.	NIACIN	2.3 mg.
FAT	10 5 Gm.	COPPER	0.2 mg.	VITAMIN C	10 mg.
CARBOHYDRATE	22 Gm.	VITAMIN A	1000 I.U.	VITAMIN D	140 I.U.
CALCIUM	370 mg.	VITAMIN B_1	0.39 mg.	CALORIES	225
PHOSPHORUS	315 mg.	RIBOFLAVIN	0.7 mg.		

*Based on average reported values for milk.

You may prescribe "RAMSES"† Vaginal Jelly with full confidence in its safety and effectiveness. No vaginal jelly available provides a greater degree of spermicidal or barrier action than does "RAMSES" Vaginal Jelly.

IMMOBILIZES SPERM IN THE FASTEST TIME RECOGNIZED FOR CHEMICAL CONTRACEPTIVES ✻


Ramses
VAGINAL JELLY
ACCEPTED COUNCIL ON PHARMACY AND CHEMISTRY AMERICAN MEDICAL ASSOCIATION
ACTIVE INGREDIENTS BY WEIGHT
DODECAETHYLENEGLYCOL MONOLAURATE 5%
BORIC ACID 1%
ALCOHOL 5%
PATENT PENDING
NET WEIGHT 5 OUNCES
MANUFACTURED BY
JULIUS SCHMID, INC.,
NEW YORK, N. Y.

✻ This immobilization time is measured by the Brown and Gamble technique, the only method accepted by the Advisory Committee on Contraceptives of the Council on Pharmacy and Chemistry of the American Medical Association for determining the sperm immobilization time of chemical contraceptives.

gynecological division
Julius Schmid, Inc.
423 West 55th Street, New York 19, N. Y.
quality first since 1883

A MARK OF Ramses DEPENDABILITY

†The word "RAMSES" is a registered trademark of Julius Schmid, Inc.

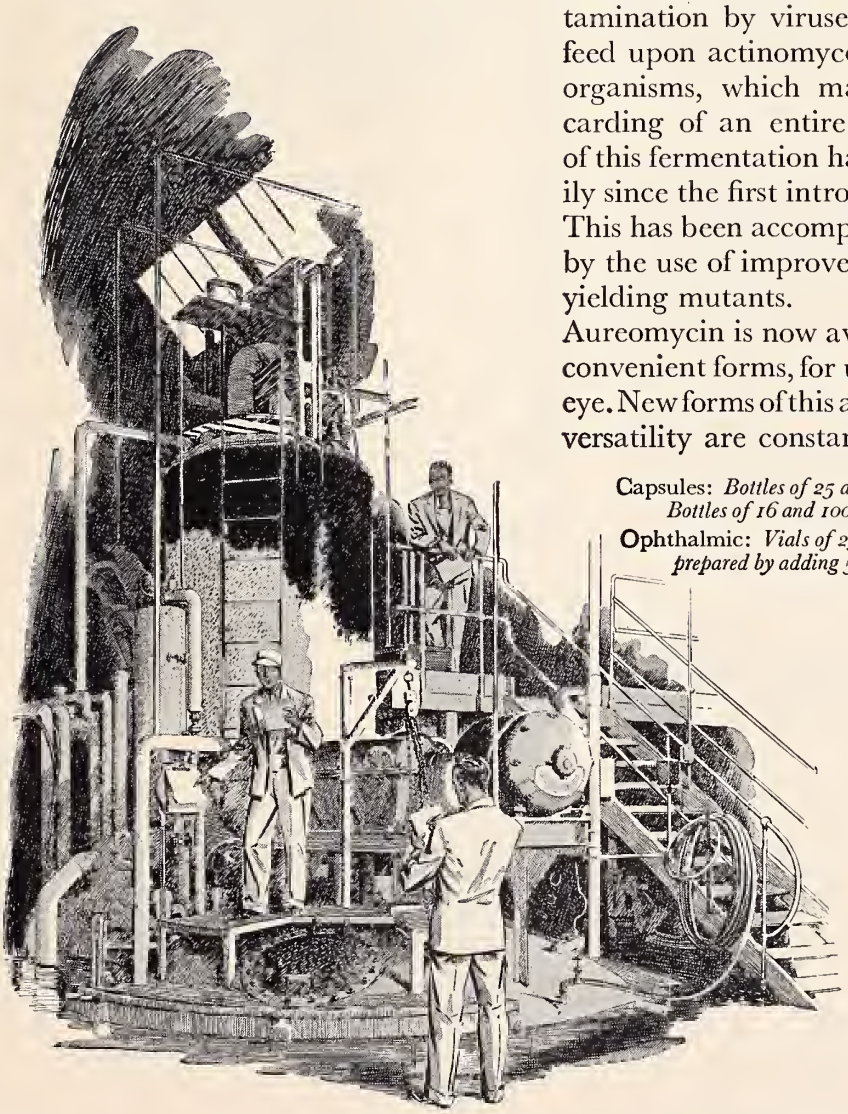
Effective against many bacterial and rickettsial infections, as well as certain protozoal and large viral diseases

AUREOMYCIN

The insatiable demand for aureomycin throughout the world has necessitated not only a tremendous expansion of our production capacity in the United States, but the setting up of highly complex technical organizations in other countries, looking toward eventual universal distribution of this extraordinarily valuable antibiotic. The huge tanks in which the basic fermentations are carried out have a capacity of 20,000 gallons each. Rigid precautions are taken to avoid contamination by viruses (actinophages) which feed upon actinomyces, and by other microorganisms, which may necessitate the discarding of an entire batch. The efficiency of this fermentation has been increased steadily since the first introduction of aureomycin. This has been accomplished for the most part by the use of improved media and of higher-yielding mutants.

Aureomycin is now available in a number of convenient forms, for use by mouth and in the eye. New forms of this antibiotic of unsurpassed versatility are constantly being brought out.

Capsules: *Bottles of 25 and 100, 50 mg. each capsule.*
Bottles of 16 and 100, 250 mg. each capsule.
Ophthalmic: *Vials of 25 mg. with dropper; solution prepared by adding 5 cc. of distilled water.*



LEDERLE LABORATORIES DIVISION AMERICAN Cyanamid COMPANY 30 Rockefeller Plaza, New York 20, N.Y.

Pure Crystalline Vitamin B_{12}

The Only Form Of This Important Vitamin Official In The U.S.P.

PREFERRED BECAUSE

potency, purity, and lack of toxicity of *crystalline* vitamin B_{12} are clearly established.

Potency: Potency of this U.S.P. product is accurately determined by precise weight.

Purity: Pure anti-anemia factor.

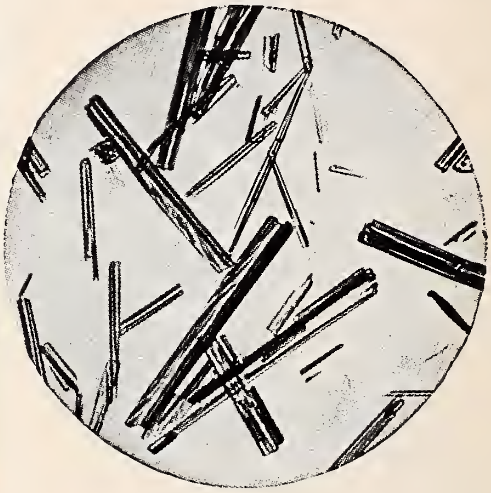
Efficacy: Produces, in microgram dosage, maximum hematologic and neurologic effects.

Tolerance: Extremely well tolerated; "no evidence of sensitivity" has been reported.

Toxicity Studies:

In recent pharmacologic investigations, extremely large doses of *crystalline* vitamin B_{12} (1,600 mg./Kg.) caused no toxic reactions in any of the animals treated. In contrast, 3 mg./Kg. of a "*concentrate*" caused fatal reactions in 100 per cent of the animals treated.

Merck—first to isolate and produce vitamin B_{12}—supplies Crystalline Vitamin B_{12} in saline solution under the trademark Cobione.* Your pharmacist stocks Cobione in 1 cc. ampuls containing 15 micrograms of crystalline vitamin B_{12}.



Crystalline Vitamin B_{12}

Cobione is the registered trade-mark of Merck & Co., Inc. for its brand of Crystalline Vitamin B_{12}.

B_{12} COBIONE®

Crystalline Vitamin B_{12} Merck

MERCK

MERCK & CO., INC.
Manufacturing Chemists
RAHWAY, NEW JERSEY

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For Your Security and Peace of Mind

A Disability Life Income Program for Eligible Members of Your State Professional Group

Lifetime Protection
for both
Sickness & Accidents

A SILENT PARTNER . . . Continental's Companion Policies

ACCIDENT AND CONFINING SICKNESS

Pays $ 400	Monthly Benefits first 2 years ($200 1st mo.) and
$ 300	Monthly Benefits thereafter for Life.
Pays $ 600	Additional Monthly Benefits First 3 Months for Hospital Disability.
Pays $ 7,500	Accidental Death Benefits, $12,500 Double Indemnity.
Pays $10,000	Loss of Hands, Feet or Eyes, $15,000 Double Indemnity (or)
$ 5,000	Cash, & $400 monthly first 2 years, $300 monthly thereafter. Adjusted benefits for disabilities occurring after age 60.

SPECIAL FEATURES

No Cancellation Clause,—Standard Provision 16

No Terminating Age,—Standard Provision 20

No Increase in Premium,—Once Policy is Issued

Grace Period 15 Days

Non Pro-Rating,—Standard Provision 17

Non-Assessable,—No Contingent Liability

Non-Aggregate,—Previous Claims Paid do not limit Company's Liability

Unusually Complete Protection

- ★ Pays Monthly Benefits from 1st Day to Life.
- ★ Pays Benefits for both Sickness and Accident.
- ★ Pays Lifetime Benefits for Time or Specific Losses.
- ★ Pays Regular Benefits for Commercial Air Travel.
- ★ Pays Benefits for Non-Disabling Injuries.
- ★ Pays Benefits for Non-Confining Sickness.
- ★ Pays Benefits for Septic Infections.
- ★ Pays Whether or not Disability is Immediate.
- ★ Waives Premiums for Total Permanent Disability.
- ★ Renewal is guaranteed to individual active members, except for non-payment of premium, so long as the plan continues in effect for the members of your designated organization.

CONTINENTAL CASUALTY COMPANY

PROFESSIONAL DEPARTMENT, *Intermediate Division*
30 EAST ADAMS STREET—SUITE 1100—CHICAGO 3, ILLINOIS

Also Attractive Health With Lifetime Accident Policy I.P.-1327 For Ages 59 to 75

Name ....
Address ....
Age ....

NOTICE:—Only Companion Policies GP-1309 and IP-1308 pay the above benefits.
IMPORTANT—Permit no agent to substitute—IMPORTANT

An "estrogen of choice for hemostasis is 'Premarin' in tablets of 1.25 mg. . . . The usual dose for hemostasis is 2 tablets three times a day. If bleeding has not decreased definitely by the third day of treatment the dosage level may be increased by 50 per cent."*

*Fry, C. O.: J. Am. M. Women's A. 4:51 (Feb.) 1949

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AMERICAN MEDICAL ASSOCIATION

"Premarin"—a naturally occurring conjugated estrogen which has long been a choice of physicians treating the climacteric—is earning further clinical acclaim in the treatment of functional uterine bleeding.

The aim of estrogenic therapy in functional uterine bleeding is to bring about cessation of bleeding, and to produce subsequent regulation of the cycle. Once hemostasis is achieved, the maximum daily dosage of "Premarin" must be continued to prevent recurrence of bleeding. This schedule forms part of cyclic estrogen-progesterone treatment for attempted salvage of ovarian function.

"Premarin" contains estrone sulfate plus the sulfates of equilin, equilenin, β-estradiol, and β-dihydroequilenin. Other α- and β-estrogenic "diols" are also present in varying amounts as water-soluble conjugates.

"PREMARIN"®

Estrogenic Substances (water-soluble)
also known as Conjugated Estrogens (equine)

Four potencies of "Premarin" permit flexibility of dosage: 2.5 mg., 1.25 mg., 0.625 mg., and 0.3 mg. tablets; also in liquid form, 0.625 mg. in each 4 cc. (1 teaspoonful).

Ayerst®

Ayerst, McKenna & Harrison Limited
22 East 40th Street, New York 16, N. Y.

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War May Hit YOU Twice, Doctor!

1. Uncle Sam won't let you force collection of debts owed you by patients who go into the armed services. You may lose substantially if you fail to act fast to get in money owed you by service-age men and women.

2. If you enter the armed forces yourself, you will need to leave your collections in reliable hands.

In either case, we suggest you check this outline of our service, then fill out and send us the request in the square below.

Here's How the I.C. System Works...

When a patient's bill becomes delinquent you fill out and mail a simple form. We then start a series of procedures designed to induce the patient to pay you *directly* what he owes you. **Note that this is not a collection agency.** The patient pays *you*. Throughout the collection, every effort is made to keep the patient's goodwill and to deflect from you the onus of asking for money. When you have received your money, not before, you remit to us a fee which is less than you would have spent to collect the money through your own efforts and which is approximately half of a collection agency fee. More than 1,000 doctors, hospitals and clinics are already using and can verify the worth of this tested system with the five unique advantages.

5 Unique Advantages

- **It gets the money to you**
- **It keeps patients friendly**
- **It safeguards your own professional dignity**
- **It's a low cost service**
- **It is a reliable service—not a collection agency**

Bank, Association and Professional References Furnished on Request

Professional Credit Protective Bureau

Division of
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CLIP AND MAIL THIS REQUEST TODAY

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Minneapolis 1, Minn.

Please send me full details on the operation of your collection service.

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Address ....
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WHERE ALCOHOLICS ACHIEVE INSPIRATION FOR RECOVERY

Where gracious living, a homelike atmosphere and understanding companionship contribute to successful rehabilitation.

200 acres on the shores of beautiful Lake Chisago

The methods of treatment used at the Hazelden Foundation are based on a true understanding of the problem of alcoholism. Among the founders of the nonprofit Hazelden Foundation are men who have recovered from alcoholism through the proved program of Alcoholics Anonymous and who know the problems of the alcoholic. All inquiries will be kept confidential.

HAZELDEN FOUNDATION

Lake Chisago, Center City, Minn. Telephone 83

Theocalcin

for the failing heart

THEOCALCIN
ONE OUNCE
THEOCALCIN
THEOCALCIN

A Wise Choice of Diuretic
and
Myocardial Stimulant

TIME PROVED - EFFECTIVE ORALLY
EASILY TOLERATED

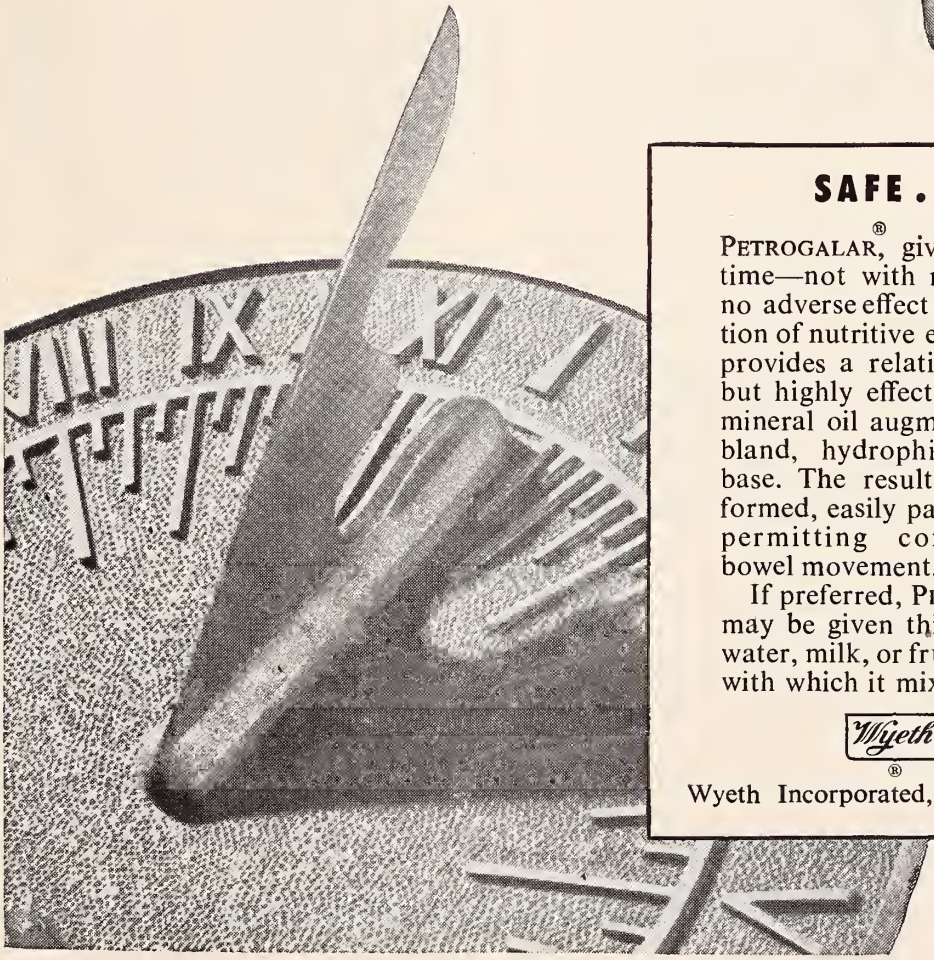
To reduce edema and diminish dyspnea and to improve heart action prescribe 1 to 3 Theocalcin Tablets (7½ gr. each) t. i. d.

Theocalcin (theobromine-calcium salicylate), Trade Mark, Bilhuber.

BILHUBER-KNOLL CORP. ORANGE NEW JERSEY

HABIT TIME OF BOWEL MOVEMENT

ONE PINT
PKG. 1896
Wyeth
Petrogalar
Aqueous Suspension of Mineral Oil Plain
Active Ingredient Mineral Oil 65%
DIRECTIONS: Adults, one tablespoonful. Children over six years old, one teaspoonful. May be thinned with water, milk or fruit juice if desired.
CAUTION: To be taken only at bedtime. Do not use at any other time or administer to infants except upon the advice of a physician.
SHAKE WELL



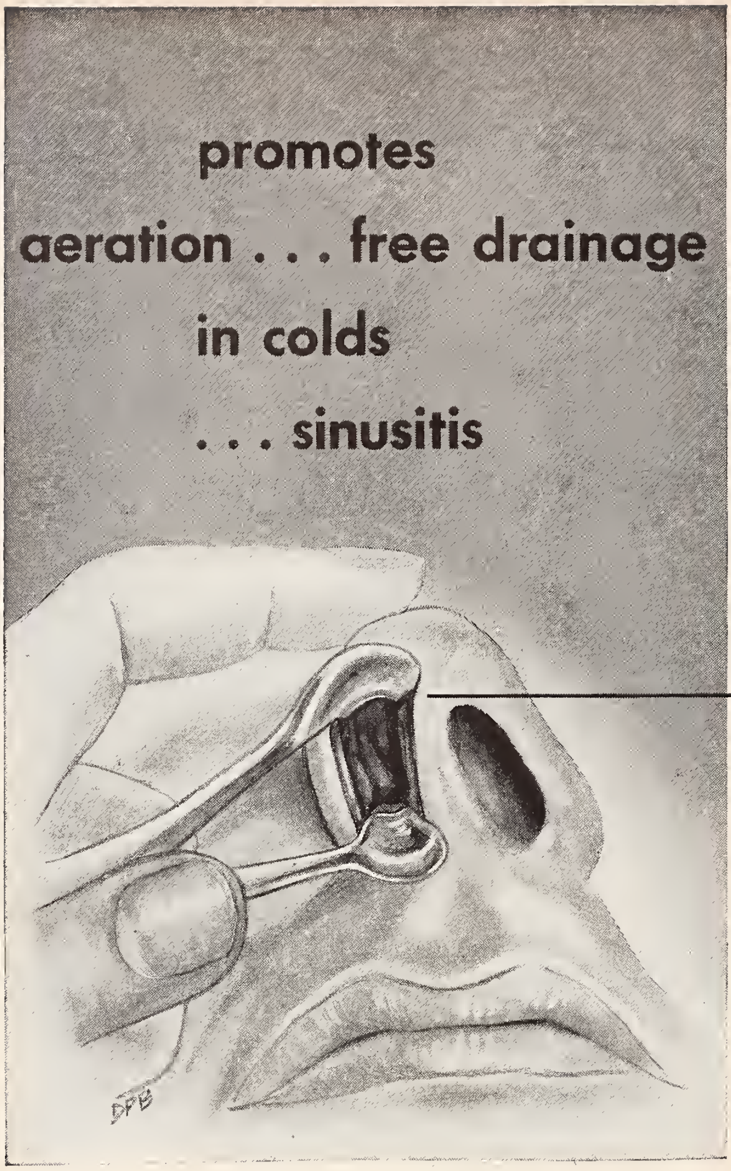
SAFE . . .

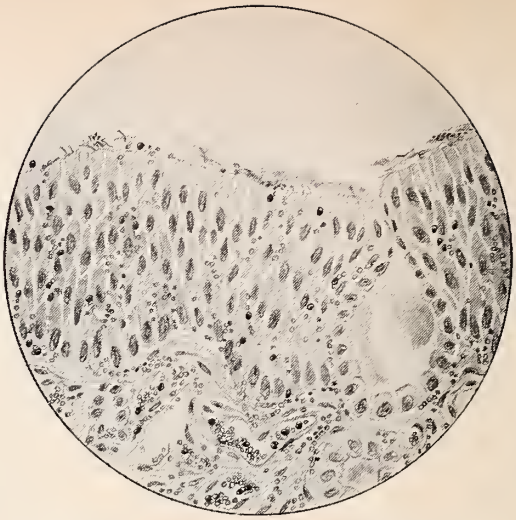
PETROGALAR®, given at bedtime—not with meals—has no adverse effect on absorption of nutritive elements. It provides a relatively small but highly effective dose of mineral oil augmented by a bland, hydrophilic colloid base. The result is a soft-formed, easily passed stool, permitting comfortable bowel movement.

If preferred, PETROGALAR may be given thinned with water, milk, or fruit juices—with which it mixes readily.

Wyeth®

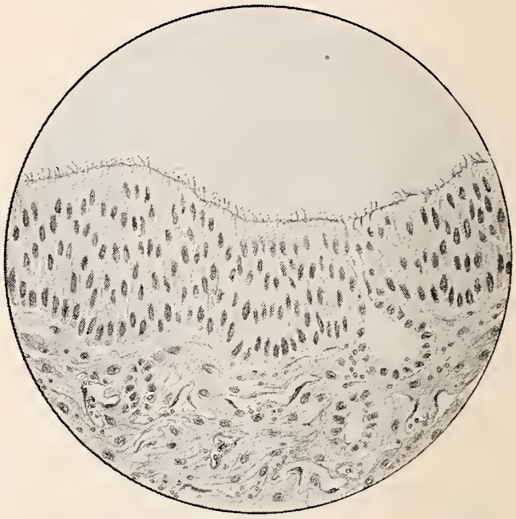
Wyeth Incorporated, Phila. 2, Pa.





Nasal membrane showing increased leukocytes with denudation of cilia.

Normal appearing nasal epithelium.



Nasal engorgement and hypersecretion accompanying the common cold and sinusitis are quickly relieved by the vasoconstrictive action of

NEO-SYNEPHRINE®

HYDROCHLORIDE

Brand of Phenylephrine Hydrochloride

The decongestive action of several drops in each nostril usually extends over two to four hours. The effect is undiminished after repeated use.

Relatively nonirritating . . . Virtually no central stimulation.

Supplied in ¼% solution (plain and aromatic), 1 oz. bottles. Also 1% solution (when greater concentration is required), 1 oz. bottles, and ½% water soluble jelly, ⅝ oz. tubes.

Winthrop-Stearns INC.
NEW YORK 13, N. Y. WINDSOR, ONT.

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AMERICAN MEDICAL ASSOCIATION

Neo-Synephrine, trademark reg. U. S. & Canada

Minnesota Medicine

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

Volume 34 February, 1951 No. 2

SIGNIFICANT DEVELOPMENTS IN BLUE CROSS AND BLUE SHIELD

ARTHUR M. CALVIN
Executive Director, Minnesota Hospital Service Association,
Minnesota Medical Service, Inc.
Saint Paul, Minnesota

HOSPITAL and medical care are never static. During the past fifty years we have witnessed the greatest advancements in medical science, and development of hospitals. Advances in medical science have made it possible to prevent many diseases and to increase materially the efficiency of diagnosis and treatment of many acute illnesses. Patients are hospitalized for shorter periods and lives are being saved.

The functions of hospitals are broadening. Many illnesses not heretofore hospitalized are now treated in hospitals. More and more physicians are using hospitals for diagnostic purposes as well as for treatment. General hospitals are being used for the short-term treatment of special diseases such as tuberculosis, nervous and mental illness, contagious diseases, and many types of chronic conditions. The public health aspect of hospital service and health education is taking on greater importance. Hospitals conduct educational programs for their professional staffs, technicians, and service personnel. Research is a necessary part of the program of the modern hospital. The expanding sphere of influence which hospitals are assuming is necessarily increasing the nation's hospital bill.

The greatest number of patients are hospitalized in voluntary hospitals for acute short-term illnesses. These hospital bills have always been difficult to pay. They are unpredictable as to time and amount and are usually accompanied by other professional expenses. The patient has little opportunity to plan for a method of payment and frequently suffers loss of income due to absence from gainful employment. The rising cost of hospital care has added to the problem. Every advancement in medical science has increased the cost of hospital care. Better trained personnel, more expensive and extensive scientific equipment, new methods of diagnosis, new measures of therapy, and new drugs, together with increased salaries and wages of hospital personnel and cost of supplies and materials have resulted in higher hospital costs which are reflected in patient charges. Therefore it was necessary to find a way to assist the public in financing their hospital and medical expenses.

Blue Cross

The idea of voluntary group prepayment of the costs of hospitalization is not new in the United States.

Eighteen years ago one of the pioneer group hospitalization plans, since called Blue Cross, was organized in Minnesota by seven hospitals to provide hospital care when needed to employed people, only, on a monthly prepayment method. Later family dependents were added. It was an experiment following the birth of an idea instituted by the Baylor Hospital of Dallas, Texas, in 1929 when an agreement was made with fifteen hundred school teachers. Approximately $800 was donated by these seven Minnesota hospitals for working capital. No statistics were available except that it was known that the average of one out of every ten persons was hospitalized once in ten years.

Presented at the State Convention of The Minnesota Farm Bureau Federation, Saint Paul, Minnesota, January 15-17, 1951.

Voluntary hospitals in the Twin Cities were operating at 60 per cent capacity during the year Blue Cross began. The city and county hospitals were filled to capacity with charity cases. Many voluntary hospitals throughout the country during this depression period were forced to close their doors because of lack of paying patients, increased charity, low occupancy accompanied by personnel who had to be paid, and other overhead costs.

It was not easy to convince the public that hospital care could be purchased at a low monthly rate. Insurance companies refrained from providing this service as such was considered very hazardous, but since Blue Cross showed the way, insurance companies have entered the field.

It was not long before those who purchased Blue Cross in 1933 and who used it for necessary hospital care, told the story to others. In 1935 eight Minneapolis hospitals affiliated with the plan, in 1938 the Duluth hospitals joined, and from there on hospitals throughout the state requested affiliation until today 163 hospitals are affiliated.

Blue Cross subscribers grew—the voluntary hospitals were soon showing increased occupancies, which permitted them to operate on a paying basis. Charity cases decreased and losses on collections became less. Today 1,025,000 people in Minnesota have Blue Cross, or one person out of every three. Since it began over forty-seven million dollars has been paid for the care of subscribers and their dependents; and during the year 1950 approximately ten million dollars was paid for subscribers' hospital care.

This story of Blue Cross growth would not be complete without reference to the active and co-operative help from the Minnesota Farm Bureau Federation. All Blue Cross plans in the beginning were confronted with the problem of how to enroll the farmer. Must it be done individually from farm house to farm house? Such would be costly.

The first farm bureau group was organized by your Mr. Kirkpatrick in 1938. Mr. Kirkpatrick was then county agent for the Hennepin County Farm Bureau. His foresight and interest in solving the problem of bringing Blue Cross to each farm family in Minnesota aroused the interest of your officers and board. To Mr. White, your president, and Mr. Jones, your executive secretary and treasurer, we are greatly indebted for their desire and willingness not only to work out a co-operative program of enrolling all farm bureau members and their families but for their determination that this program was not only a matter of importance to the people of the urban areas but also to the farmers and people in the rural areas. Your organization called Mr. Kirkpatrick to head up a department of Health Services, and through him, your officers and board, and not least your county agents and group leaders, over 30,000 farm families, representing approximately 100,000 farm people, have been enrolled. This is not only a remarkable record but a source of pride to Minnesota Blue Cross. Your organization has led the field and many other states have followed you.

Like Blue Cross plans throughout the country, Minnesota Blue Cross has been confronted from time to time with certain difficulties. When Blue Cross began in 1933 with a group of seven Saint Paul hospitals, its services were limited to a relatively compact area. There were slight difficulties during this time which could quickly be adjusted. In 1935 when Minneapolis hospitals joined the plan, it was still a compact area and one in which any problems arising could quite easily be discussed, considered and adjusted. In 1938 and thereafter when Duluth and other statewide hospitals affiliated with the plan, an important problem in Blue Cross policy and administration for payments to hospitals arose, as charges for services in each hospital were not uniform.

In the beginning, payment to all hospitals was identical. A per diem amount was paid regardless of the number of days care rendered to a subscriber. Because hospitals received different proportions of short stay cases and some hospitals provided care for more costly surgical cases than less costly medical cases, in addition to various rates charged by hospitals for the same type of service, it was necessary to change the method of payment to a percentage basis and to limit the room, board and general nursing service to an indemnity amount.

During the year 1950 a re-study of hospital payments was made and it was disclosed that the percentage basis of payment was not equitable and fair to all hospitals, subscribers and Blue Cross. A temporary payment per diem was placed on the special services provided by hospitals other than board, room and general nursing service. In the meantime two committees were appointed by the board of trustees and an outstanding actuary was secured to assist Blue Cross and the contracting hospitals to arrive at a method of payment which would be fair and equitable to subscribers, hospitals and Blue Cross. An independent self-appointed committee chosen by a group of hospitals also concerned itself with hospital payments.

A meeting of the members of the Association representing all contracting hospitals was held on December 8, 1950, at which they agreed upon a basis of payment which will increase hospital payments approximately 9 per cent over present payments. This method of payment provides, in simple language, a payment of approximately 97 per cent of the hospital's charge for services rendered to Blue Cross subscribers, or 110 per cent of the hospital's operating cost for Blue Cross subscribers care, whichever is less. This was approved by the majority of the members and will become effective March 1, 1951. Increased rates to subscribers will also be made effective at that time to groups other than the farm bureau and other groups whose rates were increased October, 1950, to meet the increased cost of hospital care.

Blue Cross from the beginning developed a service contract rather than an indemnity contract offered by most insurance companies which is limited to cash benefits. An indemnity contract would cause Blue Cross less problems, as the exact amount of payment for subscribers care would be known, and when hospital costs increased Blue Cross would not be confronted with increased payments. However, it has always been the purpose of Blue Cross to provide a service, not a cash indemnity, and to provide its subscribers with as much hospital care as possible at the least possible cost.

Blue Cross has endeavored to keep the rates to subscribers as low as possible in order to serve particularly the lower income groups and to stress voluntary health care as opposed to government controlled care, and consequently found in the rising spiral of costs that from time to time its rates have been inadequate. The majority of the hospitals have understood this and have been patient in giving Blue Cross time to revise its rates and have accepted payment according to the funds available for distribution. It is, of course, understood by everyone that more money cannot be paid out than is taken in.

Blue Cross is seeking to continue its leadership in health service and its influence with the public which is evidenced by over forty million people now covered by Blue Cross throughout the country.

Blue Cross pioneered in coverage for maternity service for which hospital bills for over one million new babies were paid last year by Blue Cross plans. It has provided reciprocity of enrollment with other Blue Cross plans so that a subscriber can transfer from one plan to another without waiting periods, and more recently it has provided reciprocity of service benefits making it possible for a subscriber away from home to receive all of the service benefits of the contract which another plan has negotiated with its hospitals.

During the year 1950 it has organized the Blue Cross Health Service Corporation to make it possible for national concerns to enroll their employes on a national basis with uniform benefits and rates through one organization rather than requiring such firms to enroll their employes in several plans, in which areas their employes are located, at different benefits and rates. Each Blue Cross plan can participate in this national program. The autonomy of the local plan is not lost. Each plan gains in its ability to serve its community by linking itself in this respect with all other plans in the nation.

Financial.—Blue Cross during the first eleven months of 1950 paid out $9,120,500 for hospital care or 88.7 per cent of its income from subscribers. It used only 9.4 per cent for operating expenses, and the balance is to be used for subscribers' future hospital care. Over forty-seven million dollars has been paid to hospitals for subscribers' care since the beginning of the plan.

Minnesota Blue Cross is financially sound. It has $3,145,800 in assets, of which over $2,000,000 is invested in government bonds. It has liabilities of $1,210,300, of which $668,000 or over half of this is for prepaid subscriber payments, and it has available for incompleted and unreported cases a reserve of $700,700, and in addition it has for possible epidemics and other emergencies a reserve of $1,234,800.

It is the purpose to keep the plan financially sound for the benefit of you and other subscribers. It was with this in mind that an actuarial consultant was employed by the Association.

Blue Shield

Blue Shield was organized by the doctors late in the year 1947. Blue Cross subscribers had long felt the need of a medical-surgical plan. Blue Cross co-operated in every way to assist Blue Shield in getting started, and it is generally thought that both plans have been complementary and of value to each other.

Blue Shield, just as Blue Cross, has made great strides in accomplishment during its short period of existence. Over 400,000 people in this state are enrolled. Nearly two million dollars has been paid to doctors for subscribers care during the first eleven months of 1950. Only 10.9 per cent was used for operating expenses.

The lower income groups of people were given increased benefits effective August 1, 1949, by action of the board of directors and the participating doctors who now number over 2,700 in the state. The increased benefits provided for services to all individuals having income of $2,000 a year for subscribers without family dependents and $3,000 a year for subscribers with family dependents.

Blue Shield is also participating in reciprocity of transfers of a subscriber from one plan to another. Blue Shield plans nationally are in the process of organizing a national corporation to provide for coverage to national firms similar to Blue Cross.

Blue Cross-Blue Shield Nationally

At the present time there are eighty-three Blue Cross plans serving forty-seven states and the District of Columbia. Their total enrollment is about forty million. Thus 25 per cent of the total population is enrolled in Blue Cross, paying hospitals at the rate of 400 million dollars annually for subscribers' care. Blue Shield is represented in forty-eight states and the District of Columbia by forty-two plans. Although having started later, they have enrolled approximately eighteen million people and pay doctors at the rate of 100 million dollars annually for subscribers' care.

The accomplishments so far suggest that such strides could not have been made by ordinary means, that behind Blue Cross and Blue Shield is a creative force unique in the history of health insurance.

It is important in appraising these plans to realize that they developed out of the communities themselves, by the hospitals, the doctors, and the people, of which your organization has been most helpful.

You and others have demonstrated that though we live in an age in which the pendulum has swung far over toward concern for the welfare of the group as a whole, toward the demand for security and the minimizing of the importance of the individual, individual initiative and independent voluntary action and freedom still exist.

Last year, for the first time, we offered a Blue Cross and Blue Shield contract to the unemployed and individuals not elegible to form a group. Underwriting of individuals is more hazardous than group underwriting. Experience so far has been satisfactory. The rates for the two non-group Blue Cross and Blue Shield contracts are higher than the group rates and the Blue Cross non-group contract benefits are less than the Blue Cross group benefits. Blue Shield provides the same benefits in the non-group as in the group contract except there are some benefit exceptions in the non-group contract which require a waiting period.

Underwriting Problems

Through the years of trial and error methods, we have accumulated statistics and underwriting information. During 1950 we used this information and supplemented our old enrollment regulations with new regulations, all for the protection of subscribers and the financial soundness of the plan.

It was expected that certain privileges of the plans would be abused, not to any great extent, but to safeguard the majority of subscribers who are fair and considerate, measures had to be taken to prevent a small minority endangering the whole plan.

Our office accounting and billing procedures have been made more efficient to keep the operation costs as low as possible. Your farm bureau groups are now being billed and handled on a businesslike basis similar to the industrial groups.

Conclusion

No story in recent American business has as much high romance as the voluntary nonprofit Blue Cross and Blue Shield plans. The suspense of their crucial and tense periods has all of the

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APPENDICITIS: FAILURE TO CORRELATE CLINICAL AND PATHOLOGIC DIAGNOSES

A Surgeon's Viewpoint

RALPH L. GORRELL, M.D.
Clarion, Iowa

THE PRIMARY PURPOSE of surgery or any branch of medicine is the cure of the patient. Time and repeated observations permit one to say that the patient is cured.

If clinical cure conflicts with pathologic opinions, what is the truth?

Hospital and surgical certifying boards tend to assume that pathologic diagnoses are exact and scientific, as opposed to clinical diagnoses. If the surgeon cannot persuade the pathologist to agree, the surgeon is automatically wrong, regardless of what happens to the patient.

Pathologic diagnosis is not an exact science; it is the interpretation of gross and microscopic findings by a trained mind, just as x-ray diagnosis is the interpretation of various shadows. If the roentgenologist goes beyond his limitations and attempts to make a complete diagnosis, he is criticized and rightly so. Is the pathologist aware of the limitations imposed by his specialty?

Specimens from the same lesion have been sent to a number of pathologists and various reports received. Does this sound like an exact science?

A boy of seven years suffers from repeated short attacks of crampy abdominal pain followed by nausea. These attacks subside in a few hours. During a quiet phase, the appendix is removed. It is grossly and microscopically negative. The boy is observed for ten years during which time he never has another attack of abdominal pain, he gains weight immediately and is much improved in general health.

Any studious pediatrician, who keeps records over a period of many years, can duplicate this history of a "crippled" appendix, yet many pathologists recognize acute appendicitis only. "Chronic appendicitis as a clinical concept does not have much standing these days. No microscopic criteria of this syndrome are recognized in this laboratory" (University of Minnesota).[2] Is this an exact science or are the criteria too hard to find?

In a study of appendices removed surgically from a group of university students, the pathologic classification used was "acute appendicitis, subacute appendicitis and no diagnosis. . . . In the no diagnosis group, *no attempt was made to follow up these cases to determine the degree of relief experienced.*"[5] Medical literature is already crowded with observations published without follow-up.

Physicians in the middle ages specialized in looking at a specimen of the patient's urine, made the diagnosis by this examination and did not confuse the issue by examining the patient or learning what happened to him.

If only pathologists would realize that the moment of removal of an appendix determines what they will find. The course of appendicitis may run from early catarrhal inflammation through acute suppuration and perforation, or more commonly, to gradual resolution and healing with or without fibrosis and other visible signs. A recurrently disturbing appendix may present no signs visible under *present-day criteria.* Medicine has made many advances; cannot pathology improve its criteria here?

Examination at any one point in the series of events does not permit the pathologist to predict the future or recall the past. This may be done only by correlating the patient's course with surgical and pathologic findings. How often does the pathologist do this? If his criteria are correct, they should be able to stand the test of the patient's subsequent course over a period of months or years, just as they must do in malignant lesions.

The true scientist is humble, ever aware of the probability of error, and thus he learns. The dogmatic pathologist may feel himself beyond error and thus never learn truth. The dogmatic surgeon who feels that he can do no wrong is just as much in error.

To confuse the issue still further is the not uncommon pathologic report of "acute appendicitis" when the appendix is removed incidentally to some chronic, non-inflammatory lesion such as a fibromyoma of the uterus. Either appendicitis is asymptomatic in some cases or pathologic criteria are not clinical criteria. Dennis[1] has stated that he believes appendicitis may be asymptomatic in some cases.

Personally, I have learned that in sending specimens to two different groups of pathologists, one being associated with a medical school and university hospital and the other a recognized pathologist and his assistants in a large city hospital, one must never send any appendix not obviously close to gangrene to one group or the diagnosis of "appendix" will be returned. The other group may report an appendix variously as chronic appendicitis, acute and chronic appendicitis, chronic appendicitis, mild chronic obliterative appendicitis, subacute appendicitis, periappendicitis, acute catarrhal appendicitis and occasionally vermiform appendix. Does this sound like an exact science?

The surgeon, who must send all his specimens to a pathologist non-conversant with clinical problems, must be careful to postpone surgery in appendicitis until acute suppuration has occurred. Appendectomy for mild acute appendicitis or interval operations between attacks of recurrent appendicitis may result in a black mark being placed on his surgical record: appendix, normal appendix, no diagnosis or no acute inflammation found. Dennis[1] has stated that one-half of patients, whose appendices had perforated and could not be removed at time of rupture, were later subjected to appendectomy only to have "normal" appendices at interval appendectomy.

The Pathologists' Rebuttal

The above comments were submitted to several pathologists who were invited to call attention to errors.

"I have read your article with considerable interest. I think that the general impression which you wish to convey is a good one, which you have made clear. I do believe that you are a bit blunt in stating it. I say that for this reason: I do not believe that the failure of correlation is due to any deliberate action on the part of the pathologist† or surgeons, but that it is simply due to a lack of correlated training. The responsibility for that correlated training falls to all of us—to myself, as a head of a department, and to you who have access to the training of young people through editorials. I personally would be more inclined to approach this as an instructive editorial rather than a criticism.

"I agree that appendicitis may be present without symptoms and I also agree that symptoms may be present and the pathologist will not be able to demonstrate the existence of acute appendicitis.

"If both the surgeon and the pathologist would recognize these two facts—and I believe that most of them actually do—there would be no real difficulty.

"If we are then to consider the morbidity and mortality which are the result of delayed appendectomy as compared with the very minor morbidity and mortality of taking out the very normal appendix or one showing only nominal inflammation, it becomes very apparent that it is not an all-or-none procedure. I personally, feel that a good surgeon should be expected to remove between 9 and 11 per cent of appendices in which I cannot in four sections of the appendix demonstrate the existence, of appendicitis. If he runs beyond 11 or 12 per cent, I feel that his surgical judgment might be inquired into. If it runs below 9 per cent, I am sure that we shall find his morbidity and mortality up."[3]

This statement is by the head of a department of pathology. It is a fair statement, very well balanced and thought out.

One of the best-known pathologists in America, long the head of a medical school department and a respected author writes:

"I do not think that pathologists are infallible, but I do believe that when three sections of the appendix made at different levels fail to show any exudate in the walls or lumen, one may say that there are no inflammatory changes in the appendix at time of operation.

"I agree with you that an appendix removed some time after an attack may show no inflammation.*

"I do not agree that an appendix without evidence of inflammation is responsible for any symptoms that the patient may have at that time.‡

"It is unfair of you to state that an appendix must be gangrenous before it is called appendicitis. A large number of appendices are called acute catarrhal appendicitis, i.e., pus in the lumen with little or no extension into the walls.**

"You are not justified in concluding that a normal-appearing appendix caused symptoms because the symptoms disappeared after appendectomy. I have often seen the symptoms disappear when no operation was performed.§

"Many pathologists hesitate to state that no inflammation is present because they do not want to hurt the feelings of the surgeon. I use the term 'No active inflammation'; I do not use the word 'Normal.' I think that this protects the surgeon.

"Every conscientious surgeon occasionally removes a normal appendix, but when five out of six are normal,

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†Neither did I; I said that the pathologist *wasn't* taking action in determining whether his criteria were correct or not.—AUTHOR.

*Why not consider the clinical history before making the diagnosis?—AUTHOR.

‡No proof given; no evidence of cases followed for years.—AUTHOR.

**Such an appendix is often found incidentally during other abdominal surgery and without any history of appendicitis. Again, there is lack of clinical correlation.—AUTHOR.

§For ten to fifteen years?—AUTHOR.

APPENDICITIS: FAILURE TO CORRELATE PATHOLOGIC AND CLINICAL DIAGNOSES

A Pathologist's Viewpoint

ARTHUR H. WELLS, M.D.
Duluth, Minnesota

DR. RALPH GORRELL'S CRITICISM of pathologists in this issue reflects one of the most important conflicts of our intra-professional life. Consider the following five facts.

1. Appendectomies compose approximately 20 per cent of the major surgery in a general hospital.
2. No trace of inflammatory or obstructive disease can be found in more than 25 per cent of these appendices.
3. The clinical diagnosis of acute appendicitis is one of the most difficult problems in surgery.
4. The normal gross and microscopic anatomic variations in appendices appear almost limitless.
5. A grade of zero in professional ability is a serious insult to the ego, especially where this can be combined with reflections upon one's professional honesty.

These five facts are at the basis of a conflict of clinical versus pathologic diagnoses, which dwarfs all other diagnostic differences of opinion between the surgeon and the pathologist. The pathologist must be willing to accept frequent and sometimes costly criticism and spend extra time and effort in a futile study of each normal appendix, or else, he must adjust his conscience and his classification of normal appendiceal variations so as to mitigate almost certain psychic injury in a colleague.

A discussion of this conflict over the appendix must be divided into at least two parts: (1.) chronic or recurrent appendicitis and (2.) acute appendicitis.

Early in the process of carefully studying some 25,000 appendices during the last twenty years, it became apparent that there was a small but significant number of otherwise normal appendices, which had evidence of chronic obstruction in a proximal part. These appendices had varying degrees of dilatation of their lumina distal to the sites of constriction and frequently contained dried and laminated fecal matter. With or without active inflammatory changes, they frequently occurred in individuals with a history of recurring attacks of right lower quadrant pain. It is conceivable that in the early phases of this proximal obstructive condition in the appendix, the symptomatology of obstruction might manifest itself without significant anatomic alterations recognizable to the pathologist. Similar transient obstructive phenomena probably occur with greater frequency in both the small and large intestines and they may be manifest with the same right lower quadrant and abdominal pains found in appendiceal obstructions.

I seriously doubt whether the number of appendices with obstruction without visible anatomical alteration is very significant. In any case, there should be no clinical evidence of inflammation and a short period of close observation would suffice for the therapy.

It is true that the gross and microscopic examinations of appendices are handicapped in this field of chronic and recurrent appendicitis by the fact that previous inflammatory processes may not leave anatomic changes in the organ. This is probably never the case in a previously ruptured appendix, seldom the case in a severe acute inflammation in the appendix and is not true in the majority of the cases of recurrent attacks of mild inflammation in the appendix. However, this inadequacy of the pathologist's ability to recognize the past in a completely healed organ is of no practical importance in our dispute over classifying the appendix. If the surgeon has removed an "interval" appendix, he is generally not upset by the absence of pathologic findings.

The important source of conflict today is not so much in the clinical fields of chronic and recurrent appendicitis as it was twenty years ago but is in the cases with clinical diagnoses of acute appendicitis. There is nothing mysterious or difficult about acute inflammation in the appendix any more than in any other tissue of the body. One basic fact must be agreed to, and that is, acute inflammation in the appendix sufficient to cause either local or generalized signs and symp-

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From the Department of Pathology, St. Luke's Hospital, Duluth, Minnesota.

toms will be associated with histologic changes of congestion of vessels, neutrophilic infiltration, and edema of tissues as a minimum histologic alteration. Furthermore, our present methods in pathology of demonstrating acute inflammation in the appendix border upon being too delicate, for they often reveal the tissue reaction due to surgical trauma. It is conceivable that the pathologist could miss an early focal area of inflammation by not taking more than four or five selected sections, but an extensive experience has shown that this is very unlikely. In short, if your pathologist cannot find the signs of acute inflammation in an appendix which was clinically diagnosed as acute appendicitis, another cause of the patient's illness should be immediately sought. He has better than a 95 per cent chance of being right.

It is entirely possible that at least a part of the solution of this problem lies with the diagnostic ability of the individual surgeon. In a review of normal appendices removed in this hospital, it was found that five surgeons who performed almost one-third of the appendectomies in the institution, removed an average of 36 per cent normal appendices, while in the process of removing two-thirds of the appendices all of the other surgeons averaged only 12.9 per cent normal appendices.

In 1928, I reviewed the tissue sections from 100 consecutive appendectomies performed by the late Dr. Arthur E. Hertzler, an ardent surgical pathologist as well as renowned surgeon. To my amazement, there were active inflammatory changes in 100 per cent of these appendices. In spite of this experience and mainly because of the great clinical variations of acute appendicitis, I am convinced that the surgeon should normally remove approximately 15 per cent normal appendices, if he is satisfactorily protecting his patients from the serious complications of this disease.

With rare exceptions, the final diagnosis of "appendicitis" based entirely upon the clinical evidence of disappearance of symptoms following the removal of an anatomically normal appendix can only be explained as inexcusable ignorance of the subject or a form of self dilusion and charlatanry. This practice can become a habit which ultimately leads to a false sense of infallability in all phases of the physician's medical life.

I would like to salute the great majority of surgeons who demand straightforward, honest, pathologic diagnoses of their excised appendices. This permits them quickly to discover the true cause of their patients' illnesses. They can also carefully evaluate the importance of the wide variety of abdominal complaints to which man is subject and spare their patients a great number of unnecessary operations.

BLUE CROSS AND BLUE SHIELD

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elements of great conflict. The times of despair have been many and the periods long.

Yet Blue Cross and Blue Shield have set new and higher marks of greater service to more people year by year, providing freedom of choice of hospital and doctor, freedom to participate voluntarily or not, without governmental financial support or compulsion.

What the future may hold for these voluntary plans is impossible to answer. It is difficult, however, not to be genuinely optimistic when we consider what has been accomplished.

We are truly grateful to the wisdom, the integrity, and the judgment of your organization, the hospitals, the doctors, the trustees and directors of these plans who serve without monetary compensation, and to the many other civic minded individuals and organizations who believe that hospital and medical care can be provided to our people voluntarily and with the least amount of government control.

THE DANGERS OF PENICILLIN THERAPY IN SYPHILIS OF THE CENTRAL NERVOUS SYSTEM

With Special Reference to the Occurrence of Delayed Reactions

SIDNEY K. SHAPIRO, M.D. AND BARNET BERRIS, M.D.

Minneapolis, Minnesota

WITHIN recent years, penicillin has become widely used in the treatment of central nervous system syphilis. Because of its efficacy in so many diseases and its relative ease of administration, the toxicity of this drug is frequently overlooked and the dangers of its use not fully appreciated. This is particularly true in central nervous system syphilis, where the dangers of toxic reactions from the use of penicillin are ever present.

TABLE I.

Case	Sex	Age	Diagnosis	Reaction to Penicillin		
				Day of I. V. Therapy	Maximum Temperature (degrees F.)	Associated Symptoms
1	M	41	Chronic encephalitis	2	101.4	
2	F	17	Wilson's disease	3	102.5	
				7	102.	Headache, malaise, chills
				8	102.5	
3	M	46	Psychoneurosis	6	102.4	Chills
4	M	50	Ruptured intervertebral disc	No reaction		
5	F	64	Metastatic carcinoma to brain	No reaction		
6	M	71	Cerebral thrombosis	No reaction		

In an effort to avoid such toxic reactions and still produce a high concentration of penicillin within the central nervous system, a schedule of therapy was devised, consisting of gradually increasing intramuscular doses of penicillin, supplemented after the fifth day by larger doses of the drug intravenously. Ten patients with neurosyphilis, as well as one patient with tertiary syphilis of the skin, were treated according to this schedule. The late occurrence of reactions in eight of the patients, two of whom subsequently died, prompts this report and serves to underwrite the need for caution in the use of this drug in the treatment of syphilis of the central nervous system. In an effort to elucidate the nature of these delayed reactions, a control series of six nonsyphilitic patients was treated in a similar manner.

Clinical Study

Crystalline Penicillin G was used throughout this study. During the first five days the drug was injected intramuscularly in increasing doses, according to the following schedule: on the first day, 5000 units every three hours; on the second day, 10,000 units every three hours; on the third day, 20,000 units every three hours; on the fourth day, 50,000 units every three hours, and commencing on the fifth day and for the remaining ten days of the treatment course, 100,000 units every three hours. From the fifth to the fourteenth day inclusive, an additional 1,000,000 units of penicillin dissolved in 500 c.c. of normal saline was administered daily intravenously in a sixty-minute period. Thus, a total dosage of 8,680,000 units intramuscularly and 10,000,000 units intravenously was administered. This course of treatment was modified only in those cases developing severe reactions.

The occurrence of toxic reactions using the above schedule in individual cases led to the administration of a similar course of therapy to six non-luetic patients as a control group (Table I), in order to determine whether these reactions were specific for individuals with central nervous system lues.

Results

Eight of the eleven luetic patients demonstrated toxic reactions (Table II). In no instance was a toxic reaction manifested prior to the institution of intravenous penicillin, and thus all reactions encountered were delayed in type. There was an extreme variability as to the day of intravenous penicillin therapy on which the reactions occurred,

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From the Division of Neurology, University of Minnesota Medical School.

toxic symptoms being encountered on every one of the ten days. Six of the eight patients had reactions following two of the intravenous infusions, while the other two patients had only one reaction. All the patients with toxic symptoms complained of malaise, headache, nausea, chilly sensation and demonstrated temperature elevation. Two patients in addition had exacerbation of luetic symptoms; in one, the skin lesions flared (Case 1) and in another there was a recurrence of severe lightning pains (Case 2). Two of the patients succumbed after the institution of therapy (Cases 3 and 4).

TABLE II.

Case	Sex	Age	Diagnosis	Reaction to Penicillin		
				Day of I. V. Therapy	Maximum Temperature (degrees F.)	Associated Symptoms
1	F	57	Tertiary lues of skin Subacute combined degeneration	See Case Report 1		Chills, nausea, vomiting, skin lesions flared
2	M	51	Tabes dorsalis	See Case Report 2		Chills, fever, exacerbation of lightning pains
3	M	56	Taboparesis	See Case Report 3		Fatal termination
4	M	62	Paresis	See Case Report 4		Fatal termination
5	M	60	Tabes dorsalis	7	102.4	Chills, vomiting, rash
6	M	60	Paresis	4	101.8	Chills
				10	102.4	Urticaria
7	M	53	Taboparesis	8	100.4	Headache
8	M	44	Paresis	2	103.6	Chills
			Chronic alcoholism	3	103	Chills
9	M	39	Paresis	No reaction		
10	F	24	Asymptomatic neurosyphilis	No reaction		
11	M	38	Taboparesis	No reaction		

Three of the six control patients demonstrated systemic reactions—headache, malaise, chilly sensation and fever.

In all but Case 4, the onset of the reaction followed the termination of the intravenous penicillin by one to three hours, and in the nonfatal cases and controls, lasted twelve to seventy-two hours.

Case Reports

Case 1.—E. E., a woman aged fifty-two, complained of numbness of the feet and legs and stumbling in the dark of six years' duration.

Physical examination revealed the following positive findings: ringed, raised nontender skin lesions on the flexor aspects of both forearms, absent vibration and impaired position sense in both lower extremities, absent ankle jerks and positive toe signs on the right.

Laboratory investigation revealed a macrocytic anemia of 11 grams and a megaloblastic bone marrow. The blood serology was 4-plus. The spinal fluid was normal. Skin biopsy of one of the lesions on the arm disclosed "granuloma compatible with syphilis."

A diagnosis of pernicious anemia with subacute combined degeneration of the cord and tertiary syphilis of the skin was made. The patient was treated with 10 units of crude liver extract intramuscularly daily, and had a maximum reticulocyte response of 8 per cent on the ninth day of therapy. A repeat bone marrow sixteen days after commencement of treatment revealed normoblastic erythropoiesis. Penicillin was then administered as luetic therapy in the dosage given in the text of the paper. No secondary reticulocyte response was noted. On the first day of intravenous penicillin, the patient noted chills, fever, nausea and vomiting, which began two hours after the intravenous had been discontinued and persisted for several hours. The maximum temperature elevation was 103.2° F., returning to normal in twelve hours. The next four days no penicillin was given, and on the fifth day another million units of penicillin was given intravenously. Systemic symptoms and fever were again noted, but subsided shortly and did not recur for the rest of the treatment course. Nine days after the onset of intravenous penicillin, the skin lesions were found to be redder and more raised, and repeat skin biopsy revealed an increase in the amount of edema present.

Comment.—This patient demonstrated a delayed reaction to penicillin characterized by systemic symptoms and exacerbation of luetic skin lesions.

Case 2.—A. S. was a fifty-one-year-old man who entered the hospital complaining of shooting pains in his legs of eleven years' duration. A diagnosis of syphilis had been made at the age of twenty-one years.

Physical examination was negative except for diminished deep tendon pain in both legs. The blood serology was positive. Spinal fluid serology was negative.

Penicillin therapy was commenced, and on the third day of treatment he received in addition 3 grams of tryparsamide intravenously. This was followed by chills, fever to 103.4° F., emesis and lightning pains. This reaction persisted for twelve hours. No further tryparsamide was given, as the reaction was attributed to this drug. Penicillin was continued, however, and two hours after the fourth intravenous penicillin infusion was completed, the patient experienced a reaction similar to that produced by the tryparsamide. Following the sixth intravenous infusion, a similar reaction occurred, and treatment was terminated.

Comment.—Two reactions following intravenous penicillin identical with the one following tryparsamide therapy, occurred in this patient. There was exacerbation of lightning pains in addition to systemic symptoms.

Case 3.—U. H., aged fifty-six, was admitted to the University Hospitals on January 23, 1948. The history could not be obtained because of the mental state of the patient and the absence of an informant. A diagnosis of taboparesis was made on the basis of the following positive findings: The patient was disoriented with respect to time, place and person and demonstrated marked impairment of memory. The pupils were irregular, constricted and did not react to light or on accommodation. The hearing was decreased bilaterally. There was bilateral paresis of the lower extremities. The tendon reflexes in the lower extremities were absent, and the toe signs were positive. In the lower extremities deep pain, vibration and position sense were markedly impaired. The spinal and blood Wassermann were 4-plus and the spinal fluid had a paretic gold curve.

Penicillin therapy was commenced. One hour after the first intravenous dose had been given on the fifth day of therapy, the patient complained of chilliness and became nauseated and vomited. His oral temperature rose to 100.5° F. Following this reaction the patient's clinical condition deteriorated. His confusion increased. It became necessary to restrain him in bed. The temperature elevation persisted. On the sixth treatment day the second million units of penicillin were given. The patient's temperature remained elevated, reaching 103.5° by rectum on the eighth treatment day. At this time because of the deterioration in this man's clinical condition and the persistent fever, all penicillin was discontinued. His clinical condition failed to improve but the temperature gradually subsided and reached normal three days after cessation of therapy. Three days after the temperature had returned to normal, intramuscular penicillin was recommenced in doses of 50,000 every three hours and the next day dosage was elevated to 100,000 units every three hours. Six days after therapy had been recommenced the temperature once more rose. Penicillin therapy was discontinued seven days later. The hyperthermia persisted until the death of the patient on April 21, 1948.

Comment.—The patient's clinical condition deteriorated markedly after the reaction to his first intravenous dose of penicillin. When penicillin therapy was recommenced by intramuscular method, fever recurred.

Case 4.—U. H., a man aged sixty-two, dated the onset of his symptoms to March, 1945, when he developed a right-sided hemiparesis and dysarthria. On his admission to the University Hospitals, a diagnosis of paresis was made on the following positive findings: He had marked dysarthria and dysphagia; his memory was impaired; the pupils were small and irregular, reacting poorly to light and accommodation. There was a right hyperreflexia and hemiparesis. The patient had urinary and fecal incontinence. The blood and spinal fluid revealed 4-plus Wassermann reaction. The spinal fluid had a first zone colloidal gold curve.

The patient had received no previous antiluetic therapy. Penicillin therapy was commenced according to the schedule. On his fifth hospital day, after receiving a portion of his first million units of intravenous penicillin, the patient had a chill and a subsequent oral temperature elevation to 100° F. The intravenous penicillin was omitted on the sixth hospital day. The fifth dose of intravenous penicillin was given on the tenth hospital day. On this day the patient had aspirated some vomitus, and a tentative diagnosis of atelectasis of the right lower lobe was made. Postural drainage and repeated bronchoscopy were used in treatment of this complication. The temperature ranged from 100° to 103° F. for the next three days and then returned to normal on the thirteenth hospital day. The sixth dose of intravenous penicillin was given on the thirteenth hospital day. When half of the intravenous had been given the patient experienced a severe chill with a temperature elevation to 105.5° F. by rectum. The patient's condition continued to deteriorate. Hyperthermia persisted and after two more days of intramuscular penicillin, all penicillin was discontinued until the seventeenth and last day of the patient's hospital stay. At this time intramuscular penicillin was recommenced. The patient expired on the seventeenth day of his hospitalization.

Comment.—The pulmonary complications make the exact role of penicillin in the demise of this patient difficult to assess. However, on two occasions the patient reacted to the intravenous penicillin, and following the patient's last severe reaction, his condition deteriorated rapidly.

Comments

The rationale behind the use of intravenous penicillin therapy to achieve an effective therapeutic penicillin level in the central nervous system is supported by recent investigations. Boger and Wilson[1] administered 500,000 units of penicillin intravenously rapidly to twenty-one paretics, and eighteen of these had significant levels of penicillin in the cerebrospinal fluid. No toxic reactions were reported. Schwemlein and his associates[6] administered to patients with primary or secondary syphilis ten to twenty-five million units of penicillin by intravenous drip over a twenty-four-hour period and also found significant levels of penicillin in the spinal fluid. Toxic reactions were encountered in some patients during the treatment period.

In an effort to minimize the dangers of Herxheimer reactions, Moore and his associates[3] initially advocated gradually increasing intramuscular doses of penicillin. In subsequent work,[4] however, they cast doubt on the rationale of this mode of penicillin administration and suggested that the Herxheimer reaction is an all-or-none phenomenon. They found that it did not occur below a minute threshold dose of approximating 5 units per kilogram of body weight. Above this level and with doses ranging from 10 units per kilogram to 120,000 units per kilogram it occurred with essentially equal frequency.

In our series, including controls, reactions occurred only after administration of intravenous penicillin. It is possible that the increasing intramuscular dosage of penicillin which preceded intravenous therapy served to sensitize the patients to penicillin and accentuated the reactions encountered. Another mechanism to be considered is that symptoms were due to a direct neurotoxic effect of penicillin. Several reports[2,8,9] have been published clearly demonstrating that penicillin may cause irritative phenomena when given intracisternally, intraventricularly, intrathecally or by direct local application of concentrated solutions to the cerebral cortex. In support of the above mechanisms is the fact that delayed reactions occurred in the control group. However, in four of the luetics there was an exacerbation of specific luetic symptoms, and this would suggest that in these cases at least another mechanism was operating, separately or in combination with the above.

There are numerous references in the literature to the occurrence of toxic reactions to penicillin within twenty-four to forty-eight hours after the onset of therapy.[3,4,6,7] These include sudden intensification of somatic or psychotic symptoms, convulsions, coma, focal vascular accident, excitement, confusion, mania, hallucinations, exacerbation of lightning pains and transverse myelitis. In addition, Rose and his group[5] reported a fatal termination following intramuscular penicillin therapy in two patients in the terminal stages of general paresis.

Moore and his group[4] believe that in general paresis penicillin therapy alone is contraindicated because of the severe Herxheimer reactions encountered, and they recommend that penicillin be used only after several malaria chills have occurred.

In these reports the occurrence of delayed reactions has not received special mention. Although it is interesting to speculate about the nature of these delayed reactions, it is apparent that their severity contraindicates the use of combined intramuscular and intravenous penicillin as outlined in the treatment of neurosyphilis.

Conclusions

1. Ten cases of neurosyphilis, one case of tertiary syphilis of the skin, and six nonluetic patients were given a combination of graded intramuscular doses of penicillin and subsequent large doses of intravenous penicillin.

2. Delayed reactions were encountered in eight of the luetics and three of the control group. Two of the patients succumbed after the institution of penicillin therapy. These reactions contraindicate the further use of the schedule employed.

3. Possible explanations for the delayed reactions are discussed.

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PERIPHERAL NEURITIS DUE TO POLYCYTHEMIA VERA

WILLIAM CHALGREN, M.D., Ph.D.
Mankato, Minnesota
and
D. R. JOHNSON, M.D.
Cambridge, Minnesota

THE symptomatology of polycythemia vera is exceedingly protean. Symptoms referable to the nervous system, the cardiovascular system, the gastrointestinal tract, the extremities and elsewhere occur both singly and in various combinations. These symptoms are due to the marked vascular engorgement which results from the overproduction of blood cells in the bone marrow. There is a decrease in the blood velocity and an increase in the viscosity, leading to circulatory insufficiency and thromboses.

Two cases of generalized peripheral neuritis secondary to polycythemia vera have been studied at the University of Minnesota Hospitals. Since this complication is rather rare, it is worthy of special mention.

Case 1.—Amanda L., a fifty-year-old Scandinavian housewife, was admitted to the hospital December 12, 1944, for investigation of a progressive paralysis of her arms and legs. Her illness began a year previously with weakness of the legs accompanied by numbness and tingling sensations of the feet. Six months later the same symptoms involved her arms. The weakness gradually progressed to almost complete paralysis of her hands and feet. This was accompanied by atrophy of the hands and feet and severe weakness of the proximal musculature of the arms and legs. She also complained of a dusky cyanosis of the skin, progressive hirsutism of the arms, legs and face, heat intolerance, irregular menstrual periods, a 35 pound weight loss, and a full feeling in her head.

Examination revealed an emaciated woman of normal intellect. The skin of the whole body was a dusky red color. The liver and spleen were enlarged, and a small pelvic mass was palpable. The blood pressure was 148/78. Neurological examination showed a severe peripheral neuritis with absent reflexes and weakness of all muscle groups in the arms and legs, most marked distally. There was atrophy of the distal muscles and both wrist and foot drop. There were early contractures in both hands. A decreased perception of all sensation in the hands and feet was noted. The cranial nerves were normal.

Laboratory studies revealed a polycythemia with a hemoglobin of 18.4 grams, a red cell count of 5,510,000 cells per cu. mm. and a hematocrit of 57 per cent. The blood volume was 7.9 liters, against a calculated normal of 4.2 liters. The spinal fluid was normal except for a pressure of 27 mm. of mercury. The basal metabolic rate was plus 40. Liver and kidney function tests were essentially normal. The glucose tolerance curve was normal. The Wassermann was negative. A chest x-ray revealed a diffuse fibrosis of the lungs consistent with a diagnosis of polycythemia. Skull x-rays disclosed a small calcification lateral but near to the pineal gland.

The case presented an interesting diagnostic problem and extensive studies were obtained. The diagnosis of polycythemia was obvious; the findings as above were repeated on several occasions. Psychometric tests revealed suggestive organic brain deterioration, although there was no clinical evidence of this. Ketosteroid excretions were low. An exploratory laparotomy was performed and an enlarged uterus with myomata was removed. No abnormal masses were found in the region of the adrenals or ovaries. After several weeks of hospitalization the development of bilateral choked discs of 0.5 diopters was observed. The spinal fluid pressure remained elevated despite the fact that the blood volume was reduced to near normal by venesection. A ventriculogram was performed to further investigate the continued increase in spinal fluid pressure and the calcification near the pineal body. No pathology was observed.

The patient's course remained the same despite continued physiotherapy, a high protein-high caloric diet, vitamins, liver, stilbestrol, and many repeated venesections. The diagnosis continued to be that of polycythemia vera complicated by a severe peripheral neuritis, bilateral choked discs, elevated basal metabolic rate, hirsutism and an intracranial calcification. She was discharged after six months of treatment in essentially the same state as she was on admission.

Case 2.—Freda H., a thirty-six-year-old German-Indian housewife, had noted a gradual onset of weakness in the arms and legs six months prior to hospitalization. She had also noted an increasing pigmentation of her skin for the past year and a 30 pound weight loss over the same period. She had not been able to walk for the previous three weeks. She complained of numbness and tingling of her hands and soles and of sharp shooting pains in her right arm of seven weeks' duration.

Examination on admission revealed a thin woman with a deeply pigmented skin. There was a generalized lymphadenopathy and the spleen and liver were enlarged. Neurological examination demonstrated a marked peripheral neuritis with weakness and atrophy of the muscles

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Dr. Chalgren is clinical assistant professor of neuropsychiatry, University of Minnesota.
Dr. Johnson is associated with the State Colony for Epileptics, Cambridge, Minnesota.

of the extremities most severe distally, with wrist and foot drop and with absent deep reflexes. Deep sensation from the extremities was impaired and hyperesthesias of the arms and legs and feet were noted. The fundi showed a suggestive choke bilaterally, with some retinal exudates and a moderate sclerosis of the vessels.

Laboratory studies revealed a hemoglobin of 18.5 grams, with 6,190,000 red blood cells per cu. mm. and a hematocrit of 60 per cent. The white blood count was 13,000. The serology was negative. A glucose tolerance test revealed a diabetic type of curve without glycosuria. The basal metabolic rate was plus 42. Bone marrow studies were consistent with a diagnosis of polycythemia. Liver function and other special tests were normal. Spinal fluid studies revealed a pressure of 18 mm. of mercury and a protein of 86 mgms. per cent. A mild first zone colloidal gold curve was present. Chest, skull and other x-rays were negative.

A diagnosis of polycythemia vera complicated by a peripheral neuritis was made. The polycythemia was treated by repeated venesections. Physiotherapy and high doses of vitamin B complex plus a high protein-high caloric diet were given for the neuritis. The patient remained about the same for four months. She then developed periods of abdominal pain accompanied by nausea and vomiting. She suddenly expired during one of these episodes. A mesenteric vein thrombosis was suspected as the cause of death. Autopsy was not permitted.

Comment

The striking similarity between these two cases is at once evident. Both patients had severe generalized peripheral neuritis and definite polycythemia. In each case the spinal fluid pressures were increased, and papilledema was present. The basal metabolic rates were elevated. Each had cyanosis and increased pigmentation of the skin and an enlarged liver and spleen. Neither patient improved after restoration of normal blood values.

Cases of multiple neuritis with polycythemia are rare, despite the fact that subjective complaints of numbness and tingling in the hands and feet are common. Fifteen per cent of 163 cases collected by Tinney, Hall and Giffin[14] had complaints of paresthesias of the extremities. Dameshek and Henstel[5] found paresthesias in twelve of twenty patients, and Adams[1] noted that they were a principal symptom in four of nine patients. These symptoms almost always disappear under treatment. Sturgis,[13] for example, had a patient who could always tell when to return for additional therapy because of the reappearance of numbness in the hands and feet.

Actual weakness and atrophy from a generalized neuritis has been recorded only a few times. Crosetti[4] reported a case in which there was a progressive atrophy of the hands and feet due to peripheral nerve involvement. The patient also had chorea. Christian[3] found a toe drop in one of his patients, and Lhermitte[9] noted peripheral atrophy as an infrequent complication.

A brachial plexus neuritis with polycythemia has been described by Meyer,[11] and Fetterman and Spitler[6] published a case in which there was a mononeuritis in the leg. The latter authors suggested that the peripheral nerve symptoms were caused by an ischemia of the nerves secondary to engorgement and thromboses of the vasa vasorum.

Pains in the limbs are not uncommon in polycythemia, but they seldom resemble rootlet or nerve pain. Diffuse pain in the bones and muscles may be due to local tissue engorgement or to pressure from the medullary cavities of the bones (Gaisbock[7]). Pain and hyperesthesias secondary to peripheral vascular disease are frequent (Brown and Giffin[2]). The classical symptoms of intermittent claudication may be present. Erythromelalgia is diagnosed when there is a sensation of burning in the feet associated with an increase in the surface temperature. Acroparesthesias, in which the burning sensation is not associated with an elevated skin temperature, are equally frequent. In both conditions the sensations of numbness and tingling may be prominent. In some cases the symptoms may closely resemble Raynaud's or Buerger's disease (Dameshek and Henstell[5]).

Other Neurological Complications.—Neuropsychiatric symptoms are actually the most common of all symptoms observed in this disease (Johnson and Chalgren[8]). They are present in 80 per cent of the cases. In 35 per cent of the cases they are the initial or most important complaint. Headache, vertigo, fatigue and weakness are frequently noted. Visual disturbances such as blurring of vision and scotomata are almost as common. The occurrence of paresthesias has already been noted. Attacks of syncope may be present and grand mal seizures have been described in a few patients. Often there are multiple vague symptoms suggesting a diagnosis of psychoneurosis. Such a diagnosis may especially be considered when symptoms of lethargy, irritability, insomnia, lapses of memory, and nervousness are prominent. Occasionally a definite depression or a picture resembling psychosis with cerebrovascular arteriosclerosis is present.

Contrasted with these vague complaints are focal symptoms indicating involvement of certain cerebral centers. Definite vascular thromboses occur in 20 per cent of the cases of polycythemia. Hemiplegias, with or without aphasia and visual field defects, most frequently result. Extrapyramidal system symptoms such as chorea and tremor have been noted. Hemihyperesthesia and thalamic pain may occur.

Diencephalic symptoms, including narcolepsy, obesity, diabetes insipidus and attacks of chills and fever may occasionally occur. The reverse situation, in which a polycythemia appears to be secondary to some diencephalic lesion such as a tumor or encephalitis is somewhat more common. This has led to the postulation of a cerebral center for the regulation of erythropoiesis. Though there are many case reports which suggest such a relationship the matter has not yet been adequately investigated.

Choked discs and an elevated spinal fluid pressure are not uncommon. Transient periods of blindness were described as early as 1838 (Loman and Dameshek[10]). In almost all patients there is an engorgement and cyanosis of the retinal veins. Hemorrhages may be present. The vertigo which is such a frequent complaint is often accompanied by nausea and vomiting, falling, tinnitus and hearing loss, simulating a Ménierè's syndrome.

These focal lesions generally occur as the result of vascular thrombosis. Occasionally they are caused by hemorrhage. Subarachnoid and subdural hemorrhage as a complication of polycythemia is infrequent but such a possibility should not be ignored in a differential diagnosis. The nonfocal symptoms are thought to be due to temporary anoxemia of the brain secondary to the slow circulation. Some of the symptoms are likely due to the tremendous congestion which expands the brain within the fixed cranial cavity. The important characteristics of the cerebral symptoms are that they are frequently multiple and that they may occur repeatedly, often followed by complete recovery. When definite tissue destruction occurs, however, there is no recovery.

Errors in Diagnosis.—The clinical picture of polycythemia vera contains a number of features which easily permits errors in diagnosis to be made. The onset is characteristically insidious. The symptoms may be present for several years before the diagnosis becomes evident. The plethoric facies which provides the usual clue to the diagnosis is often not evident for some time. A routine blood analysis may show values at the upper limits of normal and further studies may not appear indicated.

The symptomatology is usually vague and indefinite. Since nervous symptoms predominate patients are quite apt to be given a diagnosis of some functional disease. This has frequently occurred. Patients may be so diagnosed for years, until the physical signs of the disease become striking or until some obvious vascular thrombosis occurs.

Symptom complexes resembling migraine or Ménierè's disease are particularly frequent. Polycythemia should always be considered as an etiology in these conditions.

Similarly the possibility of the presence of polycythemia should never be ignored when a patient suffers from a "stroke." One should be on guard when there is a history of several strokes with subsequent recovery and when there is evidence of thrombosis in more than one vessel. Multiple and transient cerebrovascular accidents are typically seen in polycythemia. The diagnosis is further complicated because polycythemia occurs in that age group in which cerebral vascular pathology is likely to be present. There is also evidence that polycythemia hastens the progress of arteriosclerotic disease (Norman and Allen[12]). Careful examinations will usually establish the correct diagnosis. It should be kept in mind, however, that a stroke can occur as one of the first manifestations of the disease and that the other signs of polycythemia develop later.

In a few cases the symptoms closely resemble those of a brain tumor. In these cases the focal symptoms are striking, the course is progressive, and there is a choke and an increased spinal fluid pressure. Cranial explorations have been done in a number of cases. In some the symptoms have so convincingly suggested a tumor that exploration has been performed despite the knowledge that the patient was suffering from polycythemia. The reverse situation, in which polycythemia is secondary to a brain tumor may occasionally occur. In most of these cases the polycythemia ap-

(Continued on Page 183)

TRAUMA TO URETHRA AND BLADDER IN ASSOCIATION WITH PELVIC FRACTURES

Edward J. Richardson, M.D.
Saint Paul, Minnesota

THIS presentation today represents an analysis of the cases of bladder and urethral injuries which occurred in association with x-ray-proven pelvic fracture patients admitted to the Ancker Hospital in Saint Paul, Minnesota, between January 1, 1945 and January 1, 1950.

It is felt that this is a representative group of cases, since Ancker Hospital is the City Hospital and receives at least 90 per cent of all accident cases in Saint Paul and Ramsey County.

During this five-year period there were 125 individuals admitted to the hospital with pelvic fracture.

TABLE I. MECHANISM

Automobile accident	90
Fall	26
Railroad accident	2
"Pushed in bar"	2
Crushed in foundry	1
Pinned under trailer	1
Jumped off bridge	1
No history	2
	125

Table I presents the mechanism responsible for these injuries. As you can well see, the automobile heads the list, being responsible for ninety of the 125 cases. Next in frequency is falls, followed by the other causes as listed.

TABLE II. TOTAL CASES

History:	Alcoholic	22	
	Epileptic	1	
	Attempted suicide	1	
	Accidental	101	
	Total	125	
			Per Cent
Sex:	Male	67	53.6
	Female	58	46.4

As shown in Table II, in the series of 125 cases there was a history of alcoholism in twenty-two. One patient was an epileptic and one an attempted suicide. The remaining 101 cases were accidental. As one would expect, the ratio of male to female is about even. Of the patients, sixty-seven were male and fifty-eight were female, giving the percentage figures as listed. The age of these patients covered a very large span. The youngest patient in this series was a two-year-old and the oldest was ninety years of age. Incidentally, both of these patients recovered and neither had any injury to the lower urinary tract.

TABLE III. HEMATURIA

Negative	75 cases	(60.0%)
Microscopic	24 cases	(19.2%)
Gross	17 cases	(13.6%)
Not recorded	9 cases	(7.2%)

Table III gives the occurrence of hematuria in these patients. It is surprising to me that 60 per cent of these patients had neither gross nor microscopic hematuria. The importance of urinalysis in these cases cannot be emphasized too much. Twenty-four of the patients had microscopic hematuria and seventeen had gross hematuria. In nine cases no urinalysis was done. All those with gross hematuria had cystograms and further urologic investigations as indicated.

TABLE IV. BLADDER AND URETHRAL INJURIES

Cases with pelvic fracture	125	
Bladder and urethral injuries	10 (8%)	
Urethral	5	
Bladder	5	
Extraperitoneal rupture		3
Intraperitoneal rupture		2

Ten of the 125 patients (8 per cent) had bladder and urethral injuries (Table IV). In reviewing the literature, it appears that this figure of 8 per cent represents about the average throughout the country.

In 1944, McCague and Semans[1] of Pittsburgh reviewed 780 cases of pelvic fracture over a thirty-eight year period and found 133 cases, or 17 per cent, with injury to the urethra or bladder. They stated that 17 per cent was a high incidence, but explained this high incidence on the fact that their cases came from a very industrialized community where severe crushing injuries were quite common.

In these ten patients with urinary tract injury, five had injury to the urethra and five had injury to the bladder. Of these five with injury to the bladder, three had extraperitoneal rupture and two had intraperitoneal rupture.

The two most frequent findings in this group of patients are shock and pain on movement of the

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lower extremities. Both may be quite severe. In addition, there is usually abdominal tenderness, rigidity and hematuria. All patients with pelvic fracture should be suspected of having urinary tract injury until proven otherwise. Immediate microscopic examination of the urine is indicated in all cases. If the patient is unable to void, catheterization is indicated and necessary. However, if a catheter cannot be passed, then the cystogram, or cysto-urethrogram can be made by injecting contrast medium through the urethra using an asepto syringe.

The diagnosis can be made from the physical findings and x-ray—either a cystogram or cysto-urethrogram with or without the use of a catheter. However, before any of these studies are made the most important thing is first to treat the shock.

With the modern advances in x-ray technique, one should never try to establish a diagnosis of lower urinary tract injury by injecting a measured amount of solution through a catheter and then measuring the amount recovered. This may frequently lead to a false sense of security. It should be added that if in making the cystogram or cysto-urethrogram a definite diagnosis cannot be made from the anteroposterior view, then oblique views and an anteroposterior view after emptying are indicated. Rarely, if ever, is cystoscopy indicated unless it appears absolutely necessary to rule out the upper urinary tract as the source of hematuria.

In those cases in which there is urethral injury, I feel that if it is possible to pass a catheter through the urethra into the bladder, then that is all that is necessary as long as the catheter is in good functioning position. If there is any evidence of extravasation of urine, then the extravasated areas should be incised and drained. However, in those cases of urethral injury in which there is complete rupture of the urethra, then in all likelihood it will be impossible to pass a catheter through the urethra. If so, a suprapubic cystostomy should be performed, and if possible and if the patient's condition warrants it, retrograde instrumentation so that a splinting catheter can be passed through the urethra and fixed in good functioning position.

In patients with bladder rupture, whether extraperitoneal or intraperitoneal, I strongly feel that these patients should have an operation as soon as their general physical condition warrants. In the cases of intraperitoneal rupture, after the defect in the bladder has been closed and a suprapubic tube fixed in place, drainage of the peritoneal cavity is not indicated unless the patient is known to have had infected urine. In patients with extraperitoneal bladder rupture, a suprapubic tube with drainage of the perivesical spaces, and, if possible, suture of the defect in the bladder is the procedure of choice.

Time will not permit a complete discussion of all the ten cases of lower urinary tract injury in this series. In three of the five cases of urethral injury, it was possible to pass a catheter through the urethra and nothing else was necessary and the patients made uneventful recoveries. In the fourth case, it was thought that the catheter, which had been passed through the urethra, was in good functioning position. However, subsequent x-rays showed that the catheter itself was outside the bladder and lying free in the perivesical space. Once this fact had been determined, the patient was taken to the operating room, although his general condition was not satisfactory. At the operation, it was possible to place a splinting catheter in the urethra by retrograde means and leave a suprapubic tube in the bladder for drainage. However, the patient died on the third postoperative day. This patient had multiple crushing injuries and at the time of autopsy, it was the impression that the patient died from so-called crush syndrome. The fifth patient in this series will be discussed in some detail later.

It should be added that when these patients recover and are discharged from the hospital, they should have frequent postoperative check-up examinations so that any postoperative urethral stricture may be promptly recognized and treated.

In this series of cases, there were five bladder ruptures, two being intraperitoneal and three extraperitoneal. One patient died. This death was about three hours after admission to the hospital and no operation was attempted, although a diagnosis had been made, because the patient's general physical condition would not tolerate surgery. All the other four patients had surgical intervention and recovered.

Figure 1 shows a cysto-urethrogram made on a man who was admitted to the hospital after being hit by a car while crossing the street.

At the time of admission, this patient, a 62-year-old white man, was in a marked degree of shock and was bleeding from the urethra. He was immediately treated for shock and then an x-ray was made which showed a

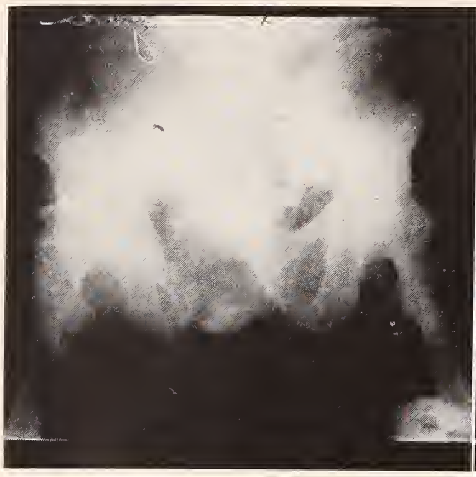

Fig. 1. Cysto-urethrogram taken after contrast medium was injected into urethra, showing medium in membranous urethra and adjacent tissues.

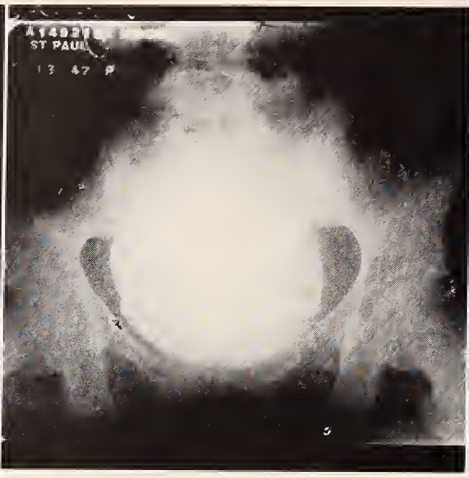

Fig. 2. Cystogram showing extravasation of contrast medium into the left perivesical space.

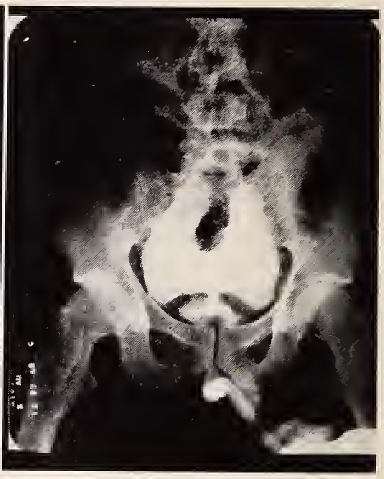

Fig. 3. Cysto-urethrogram in patient with an intraperitoneal bladder rupture.

marked separation of the symphysis and a fracture of the inferior ramus on the right. An attempt was made to pass a catheter per urethra, but this was unsuccessful and when the attempt was made to pass the catheter the patient suffered a marked drop in blood pressure. Therefore, no further attempts were made to pass any instrument through the urethra. The cysto-urethrogram was made by injecting contrast medium through the urethra using an asepto syringe. As one can see none of the contrast medium entered the bladder, but stopped abruptly in the membranous urethra and extravasated into the adjacent tissues. The patient was taken immediately to the operating room and because of his poor general physical condition a suprapubic cystostomy was made under local anesthesia. The patient had an essentially uneventful postoperative course and on the seventh postoperative day under local anesthesia it was possible to pass an F16 5 c.c. Foley bag catheter through the urethra. This was left in place for a week and then a larger catheter was passed, until finally by the third postoperative week it was possible to pass an F24 5 c.c. Foley bag catheter. The suprapubic tube was removed in the fifth postoperative week and soon after that the urethral catheter was removed. The incision healed per primam and the patient voided without difficulty and had no residual urine. He has since been followed and is getting along well. He has developed no postoperative stricture.

Figure 2 is a cystogram showing extravasation of the contrast medium into the left perivesical space.

The case is that of a 39-year-old white woman who was hit by a car while crossing the street. When she was admitted to the hospital she was in shock and had marked abdominal tenderness and rigidity, which was more marked in the left lower quadrant. The patient was unable to void and the catheterized urine was grossly bloody. As soon as the shock had been adequately treated, a suprapubic cystostomy was carried out. The rent in the bladder was sutured and the bone fragments were easily identified and removed. This patient had an uneventful postoperative convalescence.

Unfortunately, in this series of cases, there were no satisfactory radiographs in the two cases of intraperitoneal rupture. However, I have included in Figure 3 a cysto-urethrogram made in a patient who had an intraperitoneal bladder rupture.

This patient was also hit by a car and had fractures of both lower extremities with compounding on the right. After these fractures had been treated it was noted the patient had not voided and he was catheterized and 10 or 15 c.c. of bloody urine were obtained. Following this a cysto-urethrogram was made which showed a small contracted bladder with extravasation of the contrast medium into the peritoneal cavity. In Figure 3, by looking carefully, one can see the dye up in the flank between loops of bowel. This patient had immediate operation with closure of the defect in the bladder and insertion of a suprapubic tube. He eventually recovered.

TABLE V. MORTALITY

	Total	Deceased
Fractured pelvis	125	17 (13.6%)
Bladder and urethral injuries	10	2 (20 %)

The mortality figures in this series are shown in Table V. There was a total of 125 cases of fractured pelvis with seventeen deaths, or a percentage of 13.6 per cent. Autopsies were obtained in sixteen of these seventeen patients and in no instance was a diagnosis of injury to the lower urinary tract missed. Six of these seventeen deaths occurred within one hour after admission to the Accident Room. In the ten cases of bladder and urethral injuries there were two deaths for a mortality of 20 per cent. As stated earlier, one of these deaths occurred in a patient with a bladder rupture who died within three hours after admission to the hospital and whose general physical condition was so poor that no operation could be attempted. The other death occurred as previously mentioned in a patient with a ruptured urethra and at autopsy it appeared that the cause of death was due to the crushed syndrome. The other eight patients with bladder and urethral injuries recovered.

Summary

There were 125 cases of pelvic fracture admitted to the Ancker Hospital in Saint Paul, Minnesota, between January, 1945 and January, 1950. Of these 125 cases, ten were cases of bladder and urethral injury. Of these ten cases there were two deaths with a mortality of 20 per cent. The overall mortality in this series was 13.6 per cent.

It cannot be emphasized too often that all patients with pelvic fracture should be suspected of having urinary tract injury until proven otherwise. All possible attempts should be made to arrive at an early and accurate diagnosis. Once a diagnosis has been made of urinary tract injury in these cases, then the proper immediate steps should be taken to handle the situation. I feel that with injuries to the urethra, if a catheter can be passed through the urethra into the bladder, which will act as a splint and function properly, then that is all that is necessary. However, if it is impossible to pass a catheter, then suprapubic cystostomy should be done. All patients with bladder rupture should have surgical intervention, as soon as the patient's general condition warrants.

Acknowledgment

Thanks are hereby expressed to Dr. Abbott Skinner of Saint Paul, whose help in preparing this paper was invaluable.

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APPENDICITIS

(Continued from Page 138)

this means unnecessary surgery. Surely, you do not want pathologists to justify the removal of normal tissue. There is too much unnecessary surgery all over the country."[4]

Summary

Are pathologic criteria of appendiceal involvement correct? In severe suppuration, all are agreed on criteria.

The appendix may be responsible for a chronic syndrome with repeated attacks of cramping abdominal pain which recurs over a period of many years and is permanently cured by appendectomy.

The pathologic diagnosis signifies inflammatory changes found at the time of operation. No evidence may be found, using pathologists' criteria of today, for severe or even perforated appendicitis preceding the operation by several months.

Pathologic diagnosis is not an exact science; it is the interpretation of gross and microscopic findings by a trained mind. *Facts do not vary; interpretations surely do.*

Using pathologic criteria of today, acute appendicitis may be reported occasionally without clinical signs or symptoms of appendicitis.

Time is the best diagnostician. If a tumor declared pathologically benign, kills the patient by invasion or metastasis, the pathologic criteria are suspected. If the removal of a "normal" appendix cures the patient over a period of many years' observation, should one suspect that pathologic criteria may not be complete?

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ARRHENOBLASTOMA

Report of a Case with a Normal Pregnancy during Remission and Two Subsequent Normal Pregnancies after Surgical Removal

PHILIP F. ECKMAN, M.D.
Duluth, Minnesota

BECAUSE of its rarity, its unusual clinical manifestations and the speculation concerning its origin, the study of the interesting ovarian tumor, arrhenoblastoma, has proved both fascinating and stimulating. The arrhenoblastoma belongs to that small group recognized as functioning ovarian neoplasms. This discussion will review briefly some points of interest culled from the available literature concerning these tumors, and a case, illustrative of many of the unusual clinical features characteristic of this neoplasm, will be presented.

The paucity of cases of arrhenoblastoma is attested by the relatively small group appearing in the literature. Novak,[9] in a review of the subject in 1938, added six new cases to the previously reported total of forty-five. When the diagnosis was made and operation performed on the patient herewith reported, only about sixty-five cases had been collected in the literature. Subsequently, in 1947, Novak[8] reported that twenty-five additional cases had appeared, and his most recent available estimate[13] places the total number at about 125 cases.

Dockerty,[3] in a survey of ovarian tumors, has brought out some statistical generalities dealing with the relative incidence of various ovarian tumors and has summarized much of this in a prominent wall display, which may be seen on the operating room floor of St. Mary's Hospital at Rochester, Minnesota. In this he points out that, whereas 80 per cent of ovarian tumors are cystic and for the most part benign, the remaining 20 per cent are solid and predominantly malignant. Furthermore, of the solid tumors of the ovary, 15 per cent constitute a special group of four which are classified as "functioning neoplasms." In this group of functioning neoplasms, granulosa cell tumors constitute 10 per cent, theca cell tumors 2 per cent, dysgerminomata 2 per cent and arrhenoblastomata 1 per cent.

From a search of the cross indices of the Duluth hospitals and their associated pathology laboratories since 1925, it would appear that only one other case of arrhenoblastoma, besides the one reported herein, has been diagnosed. This was studied and reported by Daughtry[2] in 1943.

The term "arrhenoblastoma" was originally used by Meyer[7] to designate a group of ovarian tumors which were thought to originate from certain "male directed" cells persisting as embryonic rests in the rete ovarii. Popoff[11] in 1930 and McLester[6] in 1936, on the other hand, contended that such tumors were primarily teratomata with an overgrowth of testicular elements. Kanter and Klawans[5] supported by a case study the teratomatous theory. Novak[8] has pointed out Meyer's valuable contribution in stressing his observation that the functional or clinical manifestations of these various related tumors are determined largely by the degree of their differentiation. Meyer illustrated these gradations by histologic studies contrasting the cord-like arrangement of the undifferentiated types with the tubule-like formations seen in the highly differentiated types, which could well be designated as testicular adenomata. Between these extremes, he described an intermediate type with only imperfect tubule formations, not bearing much resemblance to testicular structures.

The characteristic clinical manifestations of arrhenoblastoma are masculinizing effects which occur in varying degrees, depending upon the degree of differentiation or the type, according to the concepts of Meyer and Novak. The writer's case report presents a clinical picture fairly illustrative of the average course of symptoms. The incidence of malignancy in arrhenoblastomata must, of necessity, remain only an estimate because of the small series of cases studied. Novak has concluded, on the basis of his own experience, plus information gleaned from the literature, that these tumors are associated with a relatively low rate of malignancy. Several fatal terminations in individuals having these tumors have been reported, one by Novak and Long, two by Meyer and one by McCarty and Dockerty (the latter from a recurrence and metastases twelve years following the original removal). Several other recurrences have been reported, and the incidence of malignancy has been estimated to be in the neighborhood of 12 per cent.

The only treatment advisable is surgical removal. Subsequently masculinizing symptoms usually regress, though sometimes not completely, and then femininity returns. Usually the symptoms disappear in the same order in which they developed. Conservative surgery, particularly in young women of child-bearing age, is desirable if possible because of the low degree of malignancy usually found in these tumors. If recurrences are encountered, radical removal of all pelvic organs would seem advisable. Novak[10] considers postoperative radiation in these cases wise but points out that sufficient time has not elapsed in our knowledge of these tumors to properly evaluate its effects.

The occurrence of pregnancy subsequent to removal of arrhenoblastoma has been reported. The sequence of a normal pregnancy following a probable spontaneous remission of the functional activity of the tumor, in the following case report, elicits interest and two subsequent additional pregnancies after removal of the tumor are noteworthy.

Case Report

Mrs. J. Z., a white woman, born in 1921, was in excellent health and had developed normally during her early life. Menstruation, which began at age fifteen, continued with regularity of rhythm at twenty-eight-day intervals and was of three days' duration with somewhat less than the average amount of flow. She had an appendectomy in 1939. In the spring of 1941 she complained of weakness, fatigue and nervous manifestations such as flushes, sweats, palpitation and a sensation of being short winded. An egg-sized adenoma of the right lobe of the thyroid gland was present without evidence of toxicity; basal metabolic rates varying between –2 and –13 were obtained. In June, 1941, menstruation ceased. In November, the thyroid gland was explored and several nodules enucleated from both lobes; these, on microscopic examination, proved to be thyroid adenomata. Following this operation she felt better while taking thyroid extract, but the amenorrhea persisted.

In July, 1942, she married. Thyroid extract therapy was continued. The patient came in occasionally, concerned principally with the amenorrhea. Examination in April, 1943, nearly two years after the onset of the amenorrhea, revealed some interesting changes. Her general appearance was still suggestive of a hypothyroid state; she had obviously been gaining weight. Defeminizing changes were quite apparent. The breasts had become exceedingly small and flat in spite of a weight gain of 25 or 30 pounds. The patient herself had noted a change in the pubic hair distribution from that typically feminine to the male distribution up to the umbilicus. Hirsuitism on the face or elsewhere was not noted. On vaginal examination, the uterus was found to be very small and atrophic with no masses in the adnexal region. The clitoris had become markedly hypertrophied and, on questioning, she described an abnormally exaggerated state of libido. Search for a masculinizing type of neoplasm was undertaken but no evidence could be found. Because of some persistent headaches and blurring of vision, skull x-rays, eyeground examination, as well as visual field determinations, were carried out without finding any abnormalities. Both ovaries were normal on palpation.

In July she was seen by a consultant who administered 2,000 rat units of estrin in oil. Interestingly, one week following this she menstruated; this continued regularly at monthly intervals and the patient stated that from this time on she began to feel more normal. During the next four to five months her weight decreased from 160 pounds to her usual weight of 130 pounds, and she noted a definite decrease in libido and some enlargement of the breasts.

In December, 1943, she again failed to menstruate and on examination subsequently she was found to be pregnant. Pregnancy progressed normally to term and she delivered sponstaneously a normal female child weighing 6 pounds 13 ounces. On her return for postpartum examination in six weeks, a firm, globular mass was found in the posterior cul de sac. She was scheduled for laparotomy, with a tentative diagnosis of ovarian cyst or tumor, probably arrhenoblastoma, on the basis of the previous clinical picture.

The tumor which was removed on October 2, 1944, was about the size of a large orange, measuring 12 by 9 by 8 cm. The surface was smooth and fibrous and of a pale, reddish-gray color. On sectioning, most of the tumor appeared necrotic, with approximately one-third of the area consisting of cysts measuring up to 2.5 cm. in diameter. The cysts were filled with serous fluid, which in some was clear and in others sanguinous. The tissue between the cysts, where it was not necrotic, was soft and edematous in consistency and varied in color from areas which were grayish-red and grayish-white to areas red and brown, indicative of various stages of hemorrhage.

On microscopy numerous sections of non-necrotic tumor tissue were studied. These showed the tumor cells arranged in nests or cords, often anastamosing, embedded in moderately cellular connective tissue stroma. Careful studies of sections from several non-necrotic areas revealed formations similar to those described by Dr. Meyer as the intermediate type (Figs. 1-4). The tumor cells, which were somewhat elongated and somewhat irregular in shape, contained round or oval nuclei, moderately rich in chromatin. There were no histologic signs of abnormal growth tendencies. Cholesterin (fat) was demonstrated by fat stains to be fairly abundant in the tumor tissue.

Dr. George Berdez, St. Mary's Hospital pathologist, diagnosed the tumor as arrhenoblastoma of the ovary. This diagnosis was corroborated by Dr. Robert Meyer

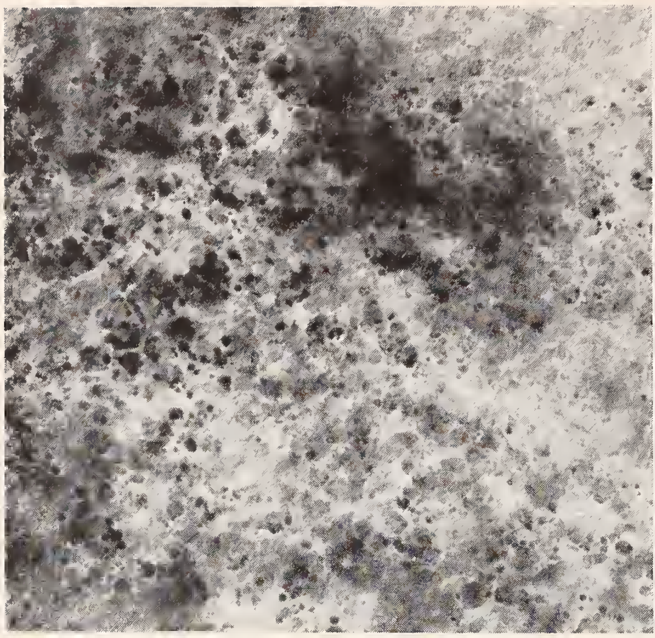

Fig. 1. Differential fat stain (black) with characteristic lipoid content of interstitial cells (low power).

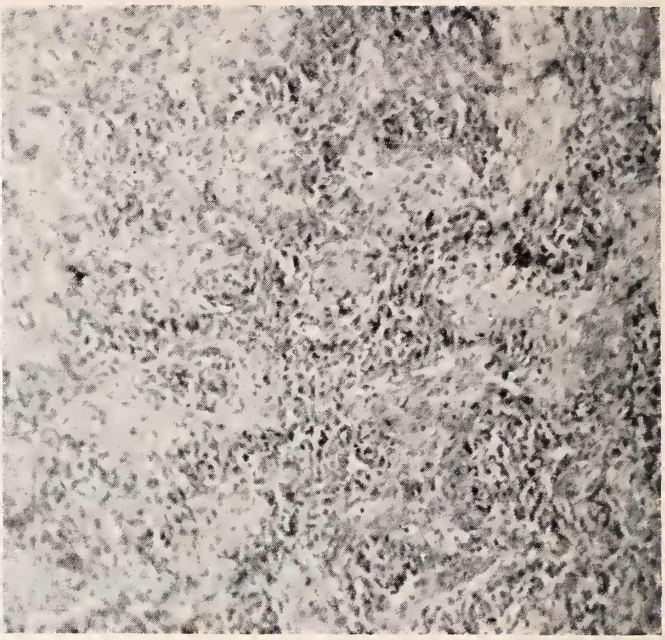

Fig. 2. Arrhenoblastoma of intermediate variety demonstrating tendency to cord formation (low power).

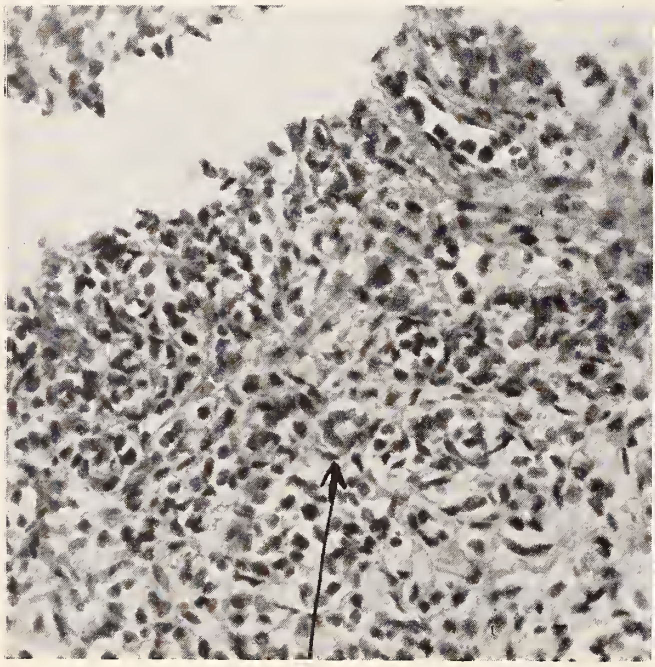

Fig. 3. Arrhenoblastoma, intermediate variety, with attempted formation of testicular tubule (high power).

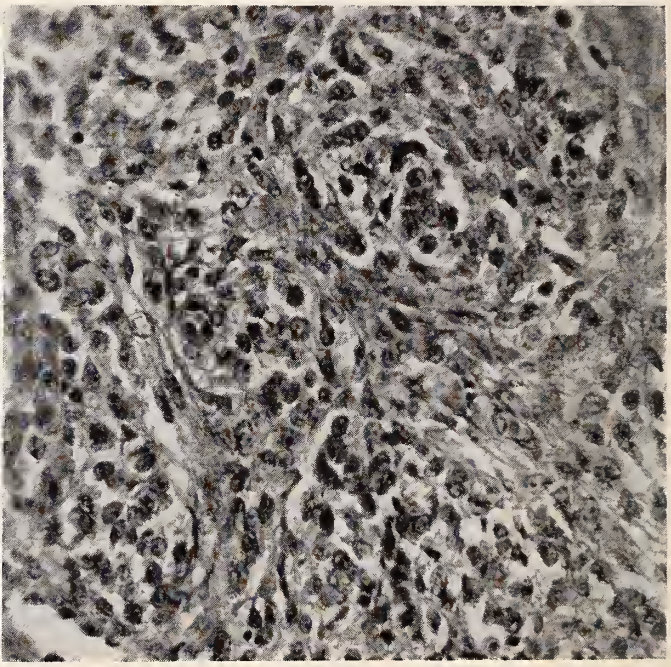

Fig. 4. Intermediate variety with tubule formation not resembling testicular tubules.

of Minneapolis, who subsequently examined some of the slides. He classified the tumor as a sarcomatous type with some epithelial structures and marked regressive changes. He stated, in a personal communication, that in his opinion the regressive changes had taken place in this tumor before menstruation was re-established and pregnancy occurred.

Since operation this patient has remained in the best of health and periodic examinations have revealed no recurrence in the pelvis or elsewhere. In 1946 she again became pregnant and delivered a normal female infant in December of that year. Interestingly, this youngster came under the observation of a pediatrician because of a large tumor developing in the right side of the abdomen. At exploration, it proved to be a large congenital cystic kidney. At the present time the patient is again pregnant, the estimated date of confinement being January 15, 1951. This pregnancy also is progressing normally, and all physical and clinical manifestations of the arrhenoblastoma, as described above, are now absent.

Summary

Another case of arrhenoblastoma has been presented which was of particular interest because the

(Continued on Page 189)

MEDICINE AND ITS PRACTITIONERS IN OLMSTED COUNTY PRIOR TO 1900

NORA H. GUTHREY
Rochester, Minnesota

(Continued from the January issue)

Olmsted County received Dr. Mayo as a resident in the spring of 1863, when he became examining surgeon for the newly established Enrollment Board of the First Minnesota District, with headquarters at Rochester. Liking the little city, he bought land where the present Mayo Clinic stands and on the corner of Franklin and Fourth Streets built a home, in which his wife and children joined him in January, 1864. In this house on July 19, 1865, Charles Horace Mayo was born. About 1870 the family home was established on a farm that adjoined southeastern Rochester.

When his service on the Enrollment Board ended in March, 1865, Dr. Mayo bought a site on Third Street, built office quarters, and thereafter devoted himself to general practice, with increasing stress on surgery, and to matters of public welfare, tilting always in behalf of the less fortunate of the population. He was one of the founders of the Rochester Public Library in 1865. He joined in sponsoring courses of lectures by eminent speakers, and on occasion he himself gave lectures on anatomy and on the natural sciences. (In 1871 he was elected an honorary member of the Acadamy of Natural Sciences, of St. Paul.) In the early sixties he began to work for adequate public schools; he served as a member of the city board of education in 1867-1870 and in 1883-1889. In 1870-1871, when Hamline University, then at Red Wing, was looking for a new location and proposed to come to Rochester, he tried to gain acceptance of the university's terms, but the others on the negotiating committee feared increase of taxes and he was voted down. A Rochester citizen who knew the Old Doctor has said, "There were many things Dr. Mayo did for the city and many more that he wanted to do, but he did not have the backing of some of the old fossils among the city fathers." The published list of his suggestions, given at a council meeting in 1886, for civic improvement and for utilization of local natural resources, is catholic. Ultimately there came, not all of them in his lifetime, many of the advances for which he long had worked: good schools, pure water, adequate sewerage, electric lights, a municipal telephone system, a new city hall, paved streets, parks, a lake, expanding highway and railroad facilities, and fair dealing for farmers in the marketing of their produce.

Dr. Mayo performed various civic functions. In the autumn of 1869 he was elected county coroner, although he could not have served the full term because during that winter he was taking postgraduate work in New York City. He was instrumental in organizing, in 1881, the Rochester Board of Trade; was mayor of Rochester, 1882-1883; alderman from his ward, 1885-1889. A fiery politician, originally a member of the Republican Party, in 1870 he joined with the Democrats and the disaffected Republicans to support a platform of anti-monopoly and free trade. In 1890 came his election as state senator on the coalition Farmers Alliance-Democratic ticket. After 1894 he was not in office, but continued in advisory capacity at regional party conferences and often was a member of committees and a delegate to conventions.

His campaign for public health and sanitation began in 1865 when he became a member of the city board of health. Thereafter for several decades he was intermittently on the board as chairman or as secretary and, member or not, was in the confidence of the state board of health and a constructive influence in his community. His periodical reports and his numerous additional bulletins, as published in Rochester newspapers, were classics. One message, in his most forceful style, headed "Poisonous Sweets. The Alarming Revelations of Chemical Examinations of Sugar, Syrup and Candies. To the Public: Death in the Pot," set forth vividly the dangers from adulteration of sweets with chloride of tin. He and Dr. W. N. Vilas had carried out the laboratory tests.

From the beginning of his professional life Dr. Mayo was an advocate of organized medicine. In 1853 he was elected to membership in the Indiana State Medical Society. In Rochester, on April 15, 1868, he was one of the six founders of the Olmsted County Medical Society, and on December 4, 1885, one of the prime movers in reorganizing the society, and its first president. Of the Minnesota State Medical Society he was an active member from February 1, 1869, third vice president in 1871 and president in 1872-1873; he often was a member of committees and a delegate to conventions of the American Medical Association. He became a member of the Ramsey County Medical Society in 1873 when, in partnership with Dr. Charles Hill, of Pine Island, who then was serving as state senator, he practiced medicine in St. Paul during his single departure (May, 1873, to March, 1874) from residence in Rochester. On November 12, 1883, he received state certificate No. 307 (R) under the "Diploma Law" of that year. In 1892 he was a founder of the Southern Minnesota Medical Association.

His inaugural address as president of the state medical society was primarily on the importance of citizenship in "the medical world," and of active duty in the society; his retiring address, on the relation of physicians to the public and each other. Part of his own responsibility in the medical world he interpreted to be generosity and encouragement to young physicians and to boys interested in entering medicine or allied professions; he was preceptor to several youths besides his sons.

There is brief record of his partnership with physicians in Rochester prior to 1883: with Dr. W. A. Hyde for a few months early in 1864; and with Dr. O. W. Anderson from December, 1867, into the summer of 1869. In 1876 and perhaps earlier he engaged as assistant physician Dr. Septimus (Seth) W. Gould; after Dr. Gould removed to Mazeppa Dr. Mayo and Dr. Elisha W. Cross were in partnership from December, 1876, to June, 1878. Dr. Gould returned to Dr. Mayo in July, 1880, and remained until December, 1881, when he entered practice in Pleasant Grove.

Varied and intense as his interests were, William Worrall Mayo was primarily a physician and surgeon, advanced for his time. His much used library contained not only the best in literature but the soundest medical periodicals of the day and the works of masters past and contemporary in all branches of medicine and the natural sciences. Whenever possible he observed the work of eastern surgeons and studied at Bellevue Hospital and at the College of Physicians and Surgeons of New York, and elsewhere, and each year he extended his surgical work. It was ten years, however, from the time he first considered ovariotomy, which ultimately was to increase his prestige, before he first performed the operation, on

December 14, 1880. In the next ten years he carried out thirty-six similar procedures, with low mortality rate. In these operations a varying group of local physicians assisted him; in 1883 Dr. W. J. Mayo began to help his father officially and in 1884 the local press reported that undergraduate "Charley" Mayo was present. The Mayo sons, however, had been their father's companions and assistants since childhood, in office, at bedside, at operating table and even occasionally at postmortem table.

On October 1, 1889, St. Mary's Hospital, in Rochester, was opened officially with Dr. Mayo and his two sons as physicians in charge. The story of the hospital appeared earlier in this paper. From time to time there has recurred a suggestion that Dr. W. W. Mayo's relation to the hospital was a source of dissatisfaction to individual physicians and to some religious groups. In reply to a recent inquiry on this point a resident of Rochester, a Catholic and the son of a pioneer settler, has said, "He was the right man and everyone knew it and was satisfied." The Sisters of St. Frances chose him, they said, because of his professional ability, dignity and integrity, and his impartial generosity to the sick poor.

Stories could be told to illustrate what manner of man this pioneer physician was. Although personal opinions may vary, the consensus is, "We had utter confidence in Dr. Mayo." To answer calls from the sick he considered a sacred obligation and, like his fellow practitioners, to do so promptly he kept a good stable. He drove at top speed and, being a small man (standing five feet four inches and weighing 120 pounds), he strapped himself to the seat of his vehicle for safety when the going was rough, as it usually was. In the autumn of 1881 a local carriage maker built to Dr. Mayo's design an enclosed English gig, and a harness maker constructed a special harness to suit the unusual plan of thills and whippletree. The gig was "a peculiar looking affair but light running, easy and convenient." Known as Dr. Mayo was for speed on the highway, the local people always pulled out to give him the road, and the new outfit made identification even easier.

With all his ability William W. Mayo was not a businessman. He was too generous for his own financial good, and collecting fees and keeping accounts were foreign to his nature. Members of his family, when he was away, were more successful in this department. The earliest case and account books that survive are those of 1876-1877, when the doctor was in partnership with Dr. Cross, and a few from 1880 into 1884. The charges were low, fifty cents for office consultations, a dollar or a dollar and a half for outcalls. The notes on patients were brief and not clinical: "John Mahoney, son of Jerry, on Tolbert place, south"; "Maurice O'Connor's son, Stewartville, married Pat Rahilly's daughter"; "Man on one of Pencill's farms." In September, 1883, "Scratch off charges against ———, ———, and ———, made during cyclone."

Louise Wright Mayo, the balance wheel of the family, as her elder son described her, was an able assistant to her husband in his practice. About her a well-known surgeon of the Pacific Coast who from boyhood was a close friend of Will and Charlie Mayo and often in their home, has said: "She had a keen mind, a practical knowledge of medicine, and was one of those wonderful people who grow old gracefully and keep an active interest in things that are worth while." She was an excellent amateur botanist and astronomer. Her sound knowledge of common diseases and of treatment for them and of fractures and dislocations she gained from experience and observation, from her husband and from study of his medical texts and journals. It has been said that she had almost as many patients as the doctor, and Dr. Mayo is quoted as saying, "If I am not here, call my wife; she can do as much for you as I can." It was Mrs. Mayo, in 1870, who encouraged her husband to mortgage the family home to purchase a fine microscope to further his care of the sick. Years later she was the proud and loving observer of her sons' progress and at the same time their severest critic if their medical papers were not up to her mark or if their general conduct did not entirely please her. She and her husband agreed in their broad charity and in their sense of social obligation. Her precept, "Life is not a question of what others owe to us, but of what we owe to others," had as formative effect on her children as did the doctor's teaching that no man is big enough to be independent of his fellows.

In retrospect the full worth of William Worrall Mayo is perhaps more apparent than it was in his lifetime. He was a man of excellent education for his time and place, he had faith in his own judgment and the courage of his convictions, yet he never was satisfied with himself, with the knowledge he had or with the things he did. He had foibles, was dogmatic and on occasion belligerent, and he made enemies, but his enemies respected him. He did not allow personal feeling to conflict with professional faith. He once said, when questioned about religion, "My own religion has been to do all the good I could to my fellow men and as little harm as possible." A facile public speaker, his favorite subjects, outside the realm of science, were social justice and the power of liberal ideas. In his old age, when addressing an audience who expected sentimental reminiscences, he gave them stirring prophecies of social and scientific advance: Tomorrow was the great day.

From youth to age his eyes were turned to new horizons, intellectual and geographic. Always an eager traveler, with the coming of relative leisure and financial ease he visited many parts of the world. At the age of eighty-five years he went alone on a long tour; on his eighty-fifth birthday Rochester honored him at a banquet which was attended by local residents and by prominent citizens from various parts of the state, and presented him with a silver loving cup inscribed, "William W. Mayo, from his Rochester Friends: May 31st, 1904." His eighty-eighth birthday he celebrated on shipboard while en route to China and Japan.

Nominally retired from practice in 1900, he continued to use his desk at the offices, to see patients and to make regular rounds at St. Mary's Hospital. In the autumn of 1908, at eighty-nine still interested in chemical research, Dr. Mayo while attempting to correct mechanical equipment that he was using in an experiment, received a severe injury to his left hand and forearm that caused a long terminal decline. When he died at his home on March 6, 1911, in his ninety-second year, he was survived by his wife (who died on July 15, 1915), one daughter, Gertrude Emily (Mrs. David M.) Berkman (whose death occurred on July 22, 1938), and two sons, Dr. William J. Mayo and Dr. Charles H. Mayo.

Not long after his death there was erected to the memory of William Worrall Mayo, in Mayo Park, his life-sized statue in bronze. Funds for the purpose had come from thousands of voluntary subscribers; no single contribution of more than one dollar was accepted. On the pedestal are engraved his full name, the dates of birth and death, and the words suggested by his sons: "Pioneer, Physician, Citizen, a Man of Hope and Forward Looking Mind."

His was a useful life. He helped the sick, the needy and the oppressed, influenced ideas, ideals and usages in the profession he loved, and gave rare opportunity to his sons.

"My brother and I."—It is impossible to write about either of the brothers, William J. Mayo and Charles H. Mayo, without including the other, and that is the way they would have it. They possessed, differently, the best traits of their unusual parents, and they were blessed with originality and the divine spark of discontent that leads to progress. They said of themselves, looking back over a lifetime, "We were always together." With years there inevitably had come con-

flicting personal interests and sympathies which between most men would have caused a rift but which between these two only strengthened the bond.

A story comes from an old friend of William J. Mayo and Charles H. Mayo from earliest days. When they were children, there lived in their neighborhood a youthful bully who tyrannized over all boys smaller than himself, and among the smallest were the Mayo boys. "The situation was a miserable one for all the kids in the locality." The Mayo brothers talked it over earnestly, debating together whether it would be right for the two of them, so much smaller, to tackle the big boy. They decided that teamwork was ethical; there was no more bullying. Sixty-five years later the teamwork was still in effect.

The evolution of their names is interesting. At the age of eight years Willie Mayo broke his arm while riding his pony. Charlie had his childish adventures. Willie Mayo and in turn Charlie Mayo went away to medical school; they returned Will and Charles; then were Dr. W. J. Mayo and Dr. C. H. Mayo. They soon became in Rochester, and presently to thousands elsewhere, and so remained, Dr. Will and Dr. Charlie.

Unlike in appearance and manner, sometimes differing slightly in concept, the brothers were one in spirit and action. They supplemented and complemented each other. The elder, of medium height and almost military bearing, fair coloring, and alert and intent gray-blue eyes, possessed imaginative vision and executive ability as rare as his surgical genius, and with it all a gift for deep and loyal friendship. The younger, short and stocky, of casual posture, dark hair and complexion and brown eyes of changing expression, possessed rare surgical ingenuity and versatility and a delightful spontaneity in human relationships. Dr. Will had a kindly sense of humor, a keen appreciation of the comic; Dr. Charlie, equally kindly, an incorrigible sense of drollery that was always with him. They both had, Dr. Harvey Cushing said, something of the Lincolnesque about them, in their modesty and self-effacement, in their shrewd appraisal of other people in whatever walk of life, and in a quiet dry wit, always ready, with which they saved many an awkward situation by telling an appropriate story more often than not turned on themselves.

In almost the same words each explained their success: "We were two men who loved each other and had absolute confidence in each other, who lived out of the same purse, who were anxious to do what they could, who came into activity at just the right time in the development of medicine and surgery." And, "We have the same ideals and these ideals are dear to us and mean more than reputation or reward."

They were never conscious of making a choice of profession; from first thought they expected to be doctors. They grew up in the atmosphere of books guided by a wise and tolerant mother and trained by an intelligent father who was a well-trained and successful physician and surgeon. Dr. Mayo taught them chemistry and anatomy, directed their reading, and instilled in them from their early childhood the theory and practice of ethical medicine, illumined by his own wisdom and experience. From the schools of Rochester they went to medical colleges, chosen by their father, that offered most in length and scope of training.

During their formal education in medicine and surgery they were taught the new methods of asepsis and antisepsis, which they adopted from the beginning of their practice. They always said that they had had an unequalled opportunity to apply new scientific methods of treatment in a new hospital (St. Mary's) operated on a new basic principle. As their practice grew, they added to their staff physicians, surgeons and research workers, the best men they could get. Thus the development of co-operative medicine was begun by them, and it grew, and the physicians who visited them began to call the group the Mayo Clinic. As time went on, through internships and the taking on of men who wished to act as assistants for the purpose of learning, the teaching function established itself and finally developed into the Mayo Foundation for Medical Education and Research, affiliated with the University of Minnesota.

Of keen intelligence, the brothers were constant, not brilliant, students, dedicated to a purpose greater than themselves. Alternating in absence from Rochester, they traveled extensively in the United States and abroad, visiting clinics, hospitals and universities where surgical work new to them was being done, observing and learning, never criticizing, and always bringing home and applying new knowledge. They were faithful in advancing organized medicine and in contributing, together and separately, to medical journals; each ultimately had a bibliography of several hundreds of papers on varied subjects, technical and philosophical.

Dr. W. J. Mayo and Dr. C. H. Mayo were master surgeons, in earlier years in the same fields and later, mutually consenting, in different special fields. Each had courage and rare surgical judgment. Although each originated many operative procedures, some of which bear their name, they made no claim of priority: "The acceptance of observations on original contributions to surgery necessarily must be qualified, for the reason that a surgical method may be original with more than one person and in different periods of time" (WJM). With characteristic modesty each bowed to the other as leader in achievement. In the period of their greatest professional activity they were known as "the surgeons' surgeons," and they took satisfaction in having each been surgeon to more than thirty members of the American Surgical Association and to immediate members of those surgeons' families, and to many other members of the medical profession.

They were sought as speakers at medical meetings, commencement ceremonies, and civic functions. Each was proposed, unofficially, more than once for the governorship of Minnesota and for the presidency of the United States; even if such proposal could have been accepted jointly, they would have refused, in devotion to their profession. Their military careers were parallel, from lieutenancy in the Medical Reserve Corps of the Army of the United States to brigadier-generalship in the Inactive Section, Officers Reserve Corps. Each received the Distinguished Service Medal for his work as alternating chief consultant in the office of the Surgeon General during World War I. Their honors, citations and awards, their memberships in medical societies and in organizations devoted to other sciences and to the arts and to human welfare comprise impressive lists. In the board of governors' room of the Mayo Clinic hang their certificates, medals and diplomas; in an adjoining narrow corridor are their military uniforms and their academic costumes from universities throughout the world. In June and July, 1946, these academic gowns, hoods and hats were on view outside the clinic for the first time, in the gallery of the University of Minnesota.

With their hearts in their home city, which as they progressed grew and prospered because of their generosity and civic pride and loyalty, they were citizens of the world, and they became news. At long last they consented to the publication, by the University of Minnesota, of a book* about their father, themselves and the work that had become the Mayo Clinic and the Mayo Foundation, stipulating that other than making records available they should have no part in its preparation. In 1937 Dr. W. J. Mayo in one particular changed his decision: he wrote to Mr. T. E. Steward, of the University, who then was compiling material toward the history, "I want to tell you something about Charlie," and went on to describe Dr. C. H. Mayo's originality, scientific imagination, surgical genius and personal loyalty: "He has never desired to develop what would rebound especially to his own credit. He has the least self-glorification of any man I know who has accomplished great things." At that time Dr. Charlie was very ill; when later he saw this plain statement of fact, as his brother called it, he said, "Isn't Will going to tell about himself? If he doesn't, I will." Unfortunately, such statement never was written.

**The Doctors Mayo*, by Helen B. Clapsattle, of the University of Minnesota, was published in 1941, more than two years after the death of Dr. C. H. Mayo and Dr. W. J. Mayo.

In their last ten years together there was an unfailing routine when they both were in town. Dr. Charlie would come in eagerly every day, "Is Will here?" Dr. Will entering the corridor would call out, "Have you seen Charlie today?" and immediately go in search of him. One day, in their last year, when they were about to leave town on different occasions they met in the older brother's office, and stood for a moment, each with his hands on the other's shoulders. "Well, Charlie." "Well, Will." And, almost together, 'We've had a good time." Whenever they parted even for a few days, in that year, they felt that it might be a last good-bye.

When Dr. Charlie died and when Dr. Will soon followed, the world paid them tribute. With their passing an epoch ended. Together they had added much to the sum total of human knowledge and had contributed greatly to the improvement of human welfare.

The following notes about them individually are but annotations on the record

William James Mayo (1861-1939), the fifth child and elder son of Dr. and Mrs. William Worrall Mayo, was born at Le Sueur, Minnesota, on June 29, 1861, and came to Rochester with his parents when he was three and a half years old.

After finishing the grades and high school, William J. Mayo studied languages at the school of Miss Finch and next had instruction at the Rochester English and Classical School (Niles Academy); in vacations he worked as assistant in a drug store. In September, 1880, he entered the medical department of the University of Michigan, at Ann Arbor, because that university, one of the first in the country to do so, recently had increased its medical course to three years. At Ann Arbor he came into close association with men of personal and professional merit: Donald Maclean, Professor of Surgery, who was in effect his preceptor; Corydon L. Ford, with whose approval he served as "volunteer instructor in the upper dissecting room"; George E. Frothingham, Alonzo B. Palmer, Victor C. Vaughan, and many others; and he made friends whose purpose in life was as earnest as his own. He was one of the six founders of Nu Sigma Nu fraternity, a group of idealistic students, "an aristocracy only of brains in which intelligent medical curiosity was the mainspring." His one departure from study was boxing; he weighed 130 pounds, boxed in the 133-pound class and was college champion.

Graduated from medical school on June 28, 1883, at the age of twenty-two years, he returned home to enter practice with his father. On November 13, 1883, he received his Minnesota state license No. 308 (R) under the "Diploma Law" of that year. His first few years in practice were a struggle for recognition on his own merit rather than as his father's son. Those were the "foot-in-the-door" days. In meeting hazards of accident, weather and even wolves in his far country calls he was as much a pioneer as his father had been. An excellent horseman from boyhood, he liked fast horses and for some years did his own driving; it is difficult for those who knew Dr. Mayo only as an older man who rode in chauffeur-driven cars to picture him in that early role.

(To be continued in the March issue)

President's Letter

"HOW BAD ARE WE?"

During 1950, and especially during the latter half of the year, American Medicine seemed to be in a bad way if one could believe the pseudo-information which burdened the mails out of Washington. One read that physicians were inefficient; were unwilling to work unless paid exorbitant fees; there were too few of them; they would not practice in small towns; the nation's health was deteriorating; things were bad. One read in the *National Health Insurance Handbook,* put out by the Committee for the Nation's Health and published in Washington, that many workers lost time through illness. The repeatedly disproved story of the draftees rejected during the last war because of "remediable or preventable" illness or physical defects was repeated. One could read on and discover that too many mothers needlessly die in childbirth. It was stated also that 25,000,000 lives are blighted by disability or physical impairment, presumably by lack of medical care. Sources of these figures not given.

The profession is anxious to learn more about these chronically ill and old age groups. The Minnesota State Medical Association has appointed a new committee, the Committee on Chronic Illness, to make a study of and to make suggestions for this group disabled by chronic illness. This committee will study the number of such disabled persons and make a further investigation as to possible remedies.

The physicians of the country would be interested to learn how compulsory National Medical Care would prevent congenital physical defects or abolish congenital mental deficiency. Refusal of patient to accept medical care, either preventive or curative, could hardly be remedied under a national system.

New Health Record

How refreshing, then, to read in *The Journal of the American Medical Association* of November 25, 1950, of the outstanding record in maternal care during 1949 in these United States and of a new low of less than one maternal death per thousand live births.

The Journal of the American Medical Association makes the further statement:

"This glorious achievement of medical progress has not been limited to the wealthier states with almost exclusively white populations. In 1949 there were thirty states with rates of less than 1.0; two at exactly that level, and only seventeen above. The highest state rate was 2.3 in 1947, and this was only one-half of the lowest state rate, 4.3 in 1933."

Plan Further Study

A brochure prepared by the Division of Maternal and Child Health of the Minnesota Department of Health for 1949 is another answer to those critics who see widespread neglect of maternal care. It should be mentioned here that over 96 per cent of the maternity cases in Minnesota were hospitalized in general hospitals and most of them were cared for by well-trained general practitioners. The Council of the Minnesota State Medical Association has approved a study by its Maternal Health Committee for the year 1950, in an effort to reduce maternal mortality still further. Minnesota has always had an excellent record for maternal care.

Let us add that this improvement in the quantity and quality of medical care was not confirmed to maternal and child health. Throughout the nation the improvement in health has been remarkable. Longer life expectancy is noted. There was less chronic illness among patients formerly considered bed patients, and illness due to nutritional disorders was lessened. On the national level one should review the Statistical Bulletin of the Metropolitan Life Insurance Company "Health and Longevity at the Mid-Century," January, 1950. They report that during the half century, American wage earners and their families as represented in insurance experience, have shown a greater gain in expectation of life than has the population as a whole. This added expectancy has been made possible by better medical and nursing care.

Benefits for Both

Progress will continue to improve the health and longevity in the future. The new discoveries are made available to the physicians of every city and village. The physician of the next fifty years will be eager to benefit by such new agents and will see that they reach his patients.

It would seem that the American medical profession has not been indifferent to health needs of the country, both preventive and curative. The profession is alert to the needs of the people under new standards of living and under the added stress of war. It will do its part in this new national emergency both at home and in the armed forces.

J. F. Norman

President, Minnesota State Medical Association

Editorial

CARL B. DRAKE, M.D., *Editor;* GEORGE EARL, M.D., HENRY L. ULRICH, M.D., *Associate Editors*

BANTHINE

ACCORDING to our present conception, the cause of peptic ulcer is in some way related to a reflex nervous mechanism, and healing of the ulcer is prevented by the accompanying hyperacidity. The neutralization of stomach acid in the treatment of peptic ulcer by alkalis and food, which has been the purpose of medical treatment since Sippy first brought forward his famous diet, is attacking the problem from only one angle. A method for lessening the secretion of hydrochloric acid in the stomach (without resorting to the expedience of surgically removing most of the stomach itself or its vagus control), which would lessen the peristalsis of the stomach at the same time, should prove ideal.

It may be that the drug known as Banthine may turn out to be the long-sought drug. Dr. Raymond N. Bieter of the Department of Pharmacology at the University of Minnesota is one of those who are investigating the drug's value, and he claims that the observation of a large number of patients over a period of two years will be necessary before definite conclusions can be drawn. Possibly a longer period will be required for final estimation of the drug's value. In the meantime, thousands of sufferers from peptic ulcer will have tried Banthine on the prescription of their medical advisors, and doubtless the lay press will draw conclusions before members of the profession have made up their minds.

According to Bieter a 100 mg. tablet of Banthine will reduce the quantity and degree of acidity of the gastric juice markedly and will also definitely delay the emptying of the stomach and the progress of a meal through the intestines. His recommended dosage of 50 mg. every four hours night and day does not slow the progress of food through the gastrointestinal tract sufficiently to cause untoward symptoms. It does produce a dry mouth, minor disturbance of visual accommodation, loss of bladder tonicity and reduction in libido, all of which reactions, however, are temporary and usually of minor importance.

Banthine is being widely used both with and without interval feedings and antacids. The drug affects both the sympathetic and parasympathetic nervous system and has much the effect of vagotomy without being permanent in its action. Strangely, it does not affect the heart and apparently is harmless in the recommended dosage.

THE NEED FOR EARLY DIAGNOSIS IN RHEUMATIC FEVER

RECENT work on the problem of rheumatic fever has caused us to reassess our knowledge. Especially since the advent of Cortisone and ACTH, fundamental studies have been possible which point to an altered membrane permeability which may be a fundamental factor in all our collagen disturbances. The rheumatic state is only one of these, and of course any contribution to our basic understanding of these disturbances is a ray of light on this at present inexplicable problem. These studies are exciting enough to promise fruit in our generation. I think it is safe to say that more steps forward have been made in the past 15 years than have been made in the past several centuries. This has been made possible by improved methods of study, improved tools of investigation, an awakening of public interest in its own problems, and by the provision of research funds which have been made available due to this interest.

Although the golden age has probably not arrived as yet, certain trends could well be reviewed at this time. First, there may well be a definite hereditary factor in rheumatic fever which may be due to biochemical differences between a child susceptible to rheumatic fever and one not so marked for trouble. Work on detecting this biochemical difference is proceeding rapidly and may prove very valuable. However, a careful family history will elicit the practical information necessary. If these susceptible children could be "tagged," they could be given close observation and care.

Second, there is the association with the streptococcus. Sufficient evidence has accumulated to induce the physician to accept this relationship and take what steps are available to cope with the problem. Those children "tagged" as potential rheumatic fever victims or susceptible children should avoid exposure to streptococcal infections so far as possible, but, if they become infected they should be given the best of care by their private physicians. This points to a definite public health service that every practicing physician should accept as his own personal responsibility.

Third, there seems to be a direct beneficial effect of Cortisone and ACTH on the symptomatology of rheumatic fever. I use these words advisedly because, although the fever, arthralgia, acute carditis and laboratory evidences of activity seem to abate rapidly, what effect this remission of symptoms has on the over-all picture of heart disease has yet to be proved. Time and experience alone can answer this problem. However, even the most conservative observer must concede that there appears to be hope on the horizon.

Fourth, there seems to be a direct relationship between early institution of therapy with Cortisone or ACTH and the rapidity with which a remission occurs. If this effect proves on further study to be the predominant response, it makes the early recognition of rheumatic fever imperative. This means that all those closely associated with children must avail themselves of the existing knowledge as to the accurate diagnosis of rheumatic fever. The parents, teachers and school nurses are the ones most closely associated with the children, but the family physician is the key man in the situation. It is he who must evaluate the picture and give advice. He must always keep in mind the cardinal diagnostic points of a child sick with polyarthritis, carditis, rheumatic nodules and chorea. When this syndrome appears in a child with a family background of rheumatic fever or a history of a previous attack of rheumatic fever, he must be doubly alerted. Treatment of this disease in the early exudative stage can do much to lower the incidence of cardiac damage. Such therapy as bed rest, removal from an environment in which the streptococcus is rampant, elimination of the streptococcal infection in the patient and reversal of his hypersensitive state are necessary. The time-honored drugs which help in the latter are the salicylates. Apparently these drugs do more than alleviate pain. Recent animal experiments have shown that various hypersensitive reactions can be controlled by salicylates. ACTH has been called "expensive aspirin," but it seems to be more than that. It calls forth adrenal cortical stimulation which has a multitude of effects on the body. Some of these are remedial as stated above but excessive and prolonged stimulation of the gland as in ACTH administration, or substitution therapy as in Cortisone administration, seems to bring about unfortunate effects. Examples of this are the accumulation of sodium, water, chlorides, and glucose with the loss of potassium, uric acid, nitrogen, calcium, phosphate and vitamin C. A note of warning must be injected at this point. The indiscriminate use of ACTH and Cortisone would not only be dangerous but would add up to a confused mass of data that could never be properly analyzed and would add too many conflicting opinions.

The thought then would be to derive the beneficial effects of adrenal stimulation in the early, exudative stage of rheumatic fever. This necessitates early diagnosis.

The present is a propitious time for the medical profession of Minnesota to go all out on rheumatic fever. We now have a uniquely favorable situation in this area to study and care for such patients with the new Variety Club Heart Hospital and the American Legion Research Professor in Rheumatic Fever and Heart Disease in Children. We have a flourishing Minnesota Heart Association which is providing funds for research through contributions of those far-seeing citizens who are greately interested in doing something to lessen the ravages of heart disease. With this combined force, Minnesota should make many major contributions toward the solution of all aspects of the problem and perhaps lead the nation in this struggle.

Since the future holds so much in store for us through this program, it is up to us as family doctors to contribute our best efforts in its support.

Paul F. Dwan, M.D.

STUDENT AMA

AN ORGANIZATION known as the Student American Medical Association was recently organized by student delegates from forty-eight medical schools throughout the country with a total membership of 15,855.

The Student AMA has for its objective the advancement of medicine, contribution to the welfare and education of medical students, familiarization of its members with the purposes and ideals of the medical profession, and preparation of its members to meet the social, moral and ethical obligations of the profession.

Warren R. Mullen of Jackson, Michigan, a student at the University of Michigan Medical School, was elected president; Harry W. Sandberg of Moline, Illinois, a student at the University of Illinois College of Medicine, was elected vice president, and David Buchanan of Huron, South Dakota, a student at the University of South Dakota School of Medical Sciences, was elected treasurer. Seven other students were elected to the executive council.

The association will be made up of academic societies in medical schools of the United States which are approved by the Council on Medical Education and Hospitals of the AMA. Each society, not more than one at any school, must have a membership of at least one-fourth of the students, or eighty-five students, whichever is the smaller.

An advisory committee to each constituent society will be composed of the dean of the school or his appointed representative, two faculty members elected by the students, a county medical society representative and a state medical society representative.

The student House of Delegates has named its president and vice president as representatives to the AMA House of Delegates. A change in the constitution of the AMA to provide for such representation is expected to become effective at the annual meeting in Atlantic City in June.

RED CROSS

TOO much publicity cannot be given to the need for increasing financial support of the Red Cross for the coming fiscal year.

The goal of the national campaign this year is 85 million. Last year's goal of 67 million was not reached. Only 65 million was raised. Thus a 30 per cent increase in contributions will be needed this year. Reserves which have been called upon in recent years have now been exhausted.

The national Red Cross is a huge organization, with 1,600,000 individuals taking part in its various activities, 14,525 being on the payroll at an average pay of $2,500.

The former national chairman of the Red Cross, George Marshall, having been appointed the new Secretary of Defense, has been replaced by E. Roland Harriman, who is serving without salary.

More than half of the Red Cross funds go to services for the members of the armed forces and veterans. As a result of the military program the need for increased services is apparent. As the Red Cross supplies the blood service for the armed forces, the expansion of this service is expensive. The possibility of bombing requires much more training in first aid and increased storing of supplies in preparation for such a catastrophe. Recent monetary inflation further increases the need for additional funds.

Red Cross furnishes personalized services for those in the armed services—services which the Army and Navy do not supply. This private organization will doubtless receive the increased financial support which its activities so richly deserve.

RABIES INCREASES

Two cases of rabies have recently appeared in dogs in Minnesota, and a number of cases in other animals. Many of the recent cases have been traceable to skunks. Dogs are the most dangerous carriers of this fatal disease, because of their close contact with human beings.

A dog in Hennepin County was bitten by a skunk about October 26 and became ill with symptoms of rabies ten days later. Fortunately, it was securely confined until its death November 9. Positive diagnosis was completed November 29, through the use of mouse inoculation tests performed by the laboratories of the State Live Stock Sanitary Board. In Cottonwood County both a cow and a dog were infected with rabies after being bitten by a skunk. Other cases reported since mid-September have involved domestic animals bitten by skunks. This unusual outbreak of rabies in skunks is explained by the fact that these animals are no longer killed for their fur; hence they are increasing rather rapidly. Rabies infects skunks in other sections of the country and the disease has gradually spread to Minnesota. Animals suspected to have been infected with rabies are examined by the Live Stock Sanitary Board, unless a human being was involved, in which case the examination is made by the State Department of Health laboratories.

No human cases of rabies have been reported in Minnesota since 1917. Persons known to have been in contact with rabid animals have been protected by anti-rabies vaccine in every case in which there was danger of their having been infected.

"An animal suspected of rabies should not be killed," say Health Department physicians. "The animal should be kept very securely confined and observed for fourteen days. If it is still alive and has not developed any symptoms by that time, it was not rabid at the time of biting. If it is necessary to kill the animal, do not shoot it through the head. It is by careful examination of the brain that rabies is diagnosed. Report all animal bites to your physician and local health officer. Full information about the prevention and treatment of rabies may be obtained from local doctors and veterinarians."—*Minnesota's Health,* December, 1950.

MEDICAL ECONOMICS

Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association
George Earl, M.D., Chairman

COMMITTEE MEMBERS CONDEMN LOBBY REPORT

Three minority members of the House of Representatives' Select Committee on Lobby Activities, recently issued a joint statement calling the "Interim Report" of this committee on lobbying, an "attempt to smear American enterprise and to discredit our American system."

The "Interim Report" concerned itself primarily with lobby activities of businesses and corporations, and was issued during the November election campaign. Simultaneously with this report, a press release was issued on so-called corporate lobbying, stating that 152 corporations spent over thirty million in the last three years to influence legislation. No mention was made of government lobbying which far exceeded that of business during the same period.

Applaud AMA's Campaign

These members, Halleck of Indiana, Brown of Ohio and O'Hara of Minnesota charged that the committee had been extremely unfair in disapproving the activities of the American Medical Association:

> "The report is extremely critical of the activities of the American Medical Association in its opposition to socialized medicine. At the same time it tacitly approves the activities of those organizations—such as the Committee for the Nation's Health—which favor not only socialized medicine, but socialized housing, socialized education, socialized industry and socialized agriculture.
>
> "A hasty examination of this distorted report . . . indicates that the majority generally approve as in the public interest all lobbying which favors passage of measures in the program of socialization, and disapprove all activities designed to uphold private initiative and government. In terms of this proposed report the defenders of the traditional American Constitutional system apparently can do no right; the left-wing groups seeking to destroy that system can do no wrong."

Cites Ewing's Trip

The statement emphatically condemns the committee's attitude that "all lobbying by business and conservative elements is bad; all lobbying by left-wingers, labor organizations and Fair Deal office holders is good." The "Interim Report" also regarded Ewing's trip to Europe to sell socialized medicine as perfectly legal:

> ". . . the report approves the tax-financed European junket by Oscar Ewing and his staff to advocate socialized medicine on a world stage. Ewing . . . held press conferences in London, Dublin, Edinburgh, Stockholm, Rome and Tel-Aviv.
>
> "Approval also is extended to outright lobbying activities of Ewing, including the luncheon he gave in his office for organizations supporting bills he desired passed—a luncheon served by Federal employees.
>
> "On the other hand, privately financed, dignified, factual, educational campaigns by citizens, professional and business groups, opposed to the socialization of America, are condemned as vicious."

Report Called "Lopsided"

Calling the report as "lopsided as the leaning tower of Pisa, as intolerant as an article in Pravda," the representatives declared that the report approved of non-registration of certain lobby groups, while it disapproved of groups which conformed to all the rules and regulations requiring registration and disclosure of financial sources.

TAXPAYERS GROUP ANNOUNCES TAX REDUCTION WEEK

The week of March 27 through April 1 has been designated in Minnesota as "Tax Reduction Week" by the Minnesota Taxpayers Association. In urging citizens to make the week an effective statewide movement, the association said:

> "This originated in . . . Minnesota and is apparently being taken on by citizen-taxpayer groups and organizations in practically every county. It is felt that this medium of citizen expression for tax reduction, through economy in government, will clearly demonstrate the temper of our people on the tax question.
>
> "The apparent 'sense' of public attitudes today is more and more towards economy in government as an economic necessity."

Americans can understand the necessity of more taxes during a national emergency to pay for defense, but most of them find it difficult to tolerate unnecessarily high levies when government waste and duplication abound in sufficient quantity to provide a substantial tax reduction.

DRUGGIST SEES GREED ARISING

Speaking before the Medical Society of the State of North Carolina, John W. McPherrin, editor of the *American Druggist,* reported that greed was showing its ugly head among users of the British national health service. He said:

> "Among doctors and pharmacists, I found many who were for the scheme—because they were making more money. These are the mediocre doctors and unsuccessful pharmacists. Among all people—patients, doctors and pharmacists—I was amazed to see human greed showing its ugly head."

Mr. McPherrin pointed out that the human element of acquisitiveness is largely responsible for the many evils of the British system. He warned that in America, where there are many who would transfer that same system here, the danger is equally great. In discussing this factor, he said:

> "Perhaps the basic problem is deeply rooted in human nature. It would appear that not every patient, doctor, or druggist is as noble and unselfish as the social planners have presupposed. Since those in charge of a Welfare State assume the authority to control any situation, they might shoot the works and issue a decree outlawing all human selfishness. Of course, it won't achieve the miracle, but the idea is no more unrealistic than some assumptions of political humanitarians.
>
> "Failure to realize that human nature doesn't change overnight has created grave problems for the Britons. Those who planned the Welfare State of Great Britain had no idea that their free health scheme was going to reveal so much human greed and selfishness. This characteristic of the human race is present among all people. It is not something peculiar to the Britons. They are no more selfish than we are. The same kind of a free health scheme in America would bring just as much greed to the surface, and result in just as many costly abuses by patients, doctors, and druggists."

Greed Curbed by Competition

The American system supplies a natural and effective curb on too much human greed, according to Mr. McPherrin. The social significance of the free competitive system found in American private enterprise, is the basic factor which makes it necessary for Americans to please their fellow businessmen, therefore effectively curbing greed by the creation of less selfish business methods to please the customer.

Mr. McPherrin cites an example:

> ". . . if a druggist doesn't have the good sense to conduct himself properly, his competitors will soon get his business. We believe that the same principle applies to doctors and hospitals wherever they exist in adequate numbers.
>
> "Without this free competition for the favor of the public, the only alternative is to pass more laws and create more controls in a vain effort to control human nature. It can't be done. Even in a police state, the people merely appear to be under control."

British Spirit Undermined

After spending some time in Great Britain, Mr. McPherrin concluded that the British Health Service has greatly affected the spirit of the people in England:

> ". . . I came home with new reverence for the faith of mankind that created America. It is my conclusion that there is no hope, peace of mind, or real security for anyone in the belief that 'The State is my Shepherd; I shall not want.' This is the real concept of the Welfare State, and it has done something to the British spirit. Nothing, not even free health service, is more important to a nation than the spirit of its people."

BRITAIN REPORTS INCREASED ILLNESS

That the rise in reported illness in England is a result of more people taking advantage of government medicine, is not the complete answer, according to a recent issue of the *Christian Science Monitor.*

Britain reported that sickness among adults rose 8 per cent and workdays lost through illness rose 22 per cent. The workdays lost by young women climbed 32 per cent and by elderly women 41 per cent, while the workdays lost by men went up 8 to 9 per cent. The paper says:

> "Officials credit the growth of reported illness mainly to economic reasons—people now getting medical service who previously could not afford it.
>
> "But there are additional reasons. In the experience of European countries with compulsory sickness insurance it has long been observed that when workers are taxed for medical care they often claim it unnecessarily. That is the only way that many figure they can get something back for their money. The situation encourages a flood of patients with minor illnesses for which they would not ordinarily seek medical attention. Some doc-

tors are consequently overworked to the point of hasty, careless diagnosis and treatment."

The newspaper also notes that other reasons for the increased reported illness are being soft-pedalled by the Fair Deal advocates:

"It is also a standard part of the government insurance system to give weekly cash payments to claimants. The chance to stay at home and live for a while with the aid of state funds frequently militates against a speedy return to work. In many instances the cash benefits delay recovery.

"The more workdays lost through illness, the smaller the production and the lower the general standard of living.

"These and other disadvantages of a national system of government insurance for medical care are getting no publicity from the Truman administration. British experience, however, is bringing out some of the missing facts."

THE MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

230 Lowry Medical Arts Bldg., Saint Paul 2, Minnesota

Julian F. DuBois, M.D., Secretary

St. Paul Man Convicted of Illegal Possession of Heroin

Re State of Minnesota vs. Horace O. Rae

On December 15, 1950, Horace O. Rae, aged forty-one, 541 Rondo Avenue, St. Paul, Minnesota, was sentenced by the Hon. Robert V. Rensch, Judge of the District Court of Ramsey County, to a term of not to exceed five years in the State Reformatory at St. Cloud, following the defendant's plea of guilty on November 22, 1950, to an information charging him with the illegal possession of heroin. Judge Rensch stayed the sentence and placed the defendant on probation; one of the conditions of probation being that the defendant be hospitalized at the Willmar State Hospital for treatment for drug addiction. According to the records of the Willmar State Hospital, Rae was admitted as a patient on December 15, 1950.

Rae was arrested on November 8, 1950, by agents of the Federal Bureau of Narcotics and St. Paul police officers following an attempt by someone to obtain narcotic drugs on a fictitious prescription that was presented at a St. Paul drug store. The investigation led to the arrest of the defendant, Rae. Rae denied, in Court, that he presented the prescription. He did admit, however, the ownership of heroin found in his room. Rae stated to Police that he purchased the narcotic drugs in Chicago two months previously for $175. The physician whose prescription blank was presented at the St. Paul drug store, denied that he had issued any such prescription to the defendant. He stated that a man resembling the defendant, had been at his office and that he had prescribed a non-narcotic preparation for the patient. He further stated that the patient indicated that a doctor in Ohio had prescribed dilaudid for him. The doctor, however, was unable to positively identify the defendant as the patient.

The Minnesota State Board of Medical Examiners wishes to again caution the medical profession against leaving prescription blanks in their office where they can be picked up by patients. Numerous cases of forged narcotic prescriptions have been uncovered by the Federal Bureau of Narcotics because of such carelessness. This leads to the illegal obtaining of narcotic drugs and to much embarrassment for the medical profession in the investigations that follow. Likewise, the medical profession should pay little or no attention to representations made by patients that some other doctor has prescribed a derivative of opium for the patient. This technique is uniformly followed by addicts who seek to obtain narcotic drugs. The Federal Bureau of Narcotics, for many years, has followed a policy of co-operating with the Minnesota State Board of Medical Examiners and the medical profession. In return, the Medical Board respectfully requests that the medical profession co-operate with the Federal Bureau of Narcotics.

St. Paul Woman Pleads Guilty to Violation of Basic Science Law

Re State of Minnesota vs. Assunda Willner, also known as Sue Willner

On January 5, 1951, Mrs. Assunda Willner, aged forty, 343 W. Central Avenue, Saint Paul, Minnesota, was sentenced by the Hon. Robert V. Rensch, Judge of the District Court of Ramsey County, to serve 60 days in the Ramsey County Jail for practicing healing without a basic science certificate. Mrs. Willner had entered a plea of guilty on December 13, 1950, the matter being deferred for sentence to January 5.

Mrs. Willner was arrested following the filing of a complaint on November 21, 1950, charging her with the crime of abortion. The complaint alleged that the defendant performed an abortion on a 26-year-old unmarried St. Paul woman on or about September 30, 1950. According to a statement made to the St. Paul Police Department by the patient, $400 was paid to the defendant for the abortion. The patient also stated that the abortion was done by the defendant at the defendant's home. Mrs. Willner denied that she performed the abortion and claimed that she simply took care of the patient after she had been aborted.

The defendant has two previous convictions, one for the crime of abortion in 1947, and one for the crime of practicing healing without a basic science certificate in 1942. In the 1942 case the defendant was placed on probation, whereas, in the 1947 case, Mrs. Willner was placed on probation after serving sixty days in the Ramsey County Jail. The defendant holds no license to practice any form of healing.

Minneapolis Woman Placed on Probation for Four Years in Abortion Case

Re State of Minnesota vs. Elsie Mae Perreault

On January 23, 1951, Mrs. Elsie Mae Perreault, forty-four years of age, 2317 Bloomington Avenue South, Minneapolis, was sentenced by the Hon. Levi M. Hall, Judge of the District Court of Hennepin County, to a term of not to exceed four years in the Women's Reformatory at Shakopee. Mrs. Perreault had entered a plea of guilty on January 2, 1951, to an information

(Continued on Page 174)

In Memoriam

EDWIN S. BROWN

Dr. Edwin S. Brown of Minneapolis died December 9, 1950 at the age of sixty-seven.

Dr. Brown held a bachelor's degree from the University of Minnesota and was a graduate of Pennsylvania Medical School. For six years he was associated with the University of Minnesota Health Service and for the past eighteen years with the Commander-Larabee Milling Company.

Dr. Brown is survived by his wife, Evelyn, and a son, Richard S. Brown, of Minneapolis.

EDWIN B. DAUGHERTY

Dr. E. B. Daugherty, for many years a specialist in tuberculosis in Saint Paul until his retirement fifteen years ago to his home at Marine-on-St. Croix, died December 22, 1950 at Fort Meyers, Florida. He was seventy-three years of age.

Dr. Daugherty was born October 29, 1877.

He graduated from the University of Minnesota Medical School in 1904 and specialized in tuberculosis, having conducted the tuberculosis clinic of the City of Saint Paul over twenty-four years, first at the old Free Dispensary and later at the Wilder Dispensary.

He married May Alness of Saint Paul, who survives him. He was a brother of the late Dr. Louis B. Daugherty of Saint Paul. A son, Edwin B., Jr., died of an acute heart attack while quail hunting in the south. He was serving in the army at the time, during World War II.

WARREN WELSLEY DROUGHT

Dr. W. W. Drought of Fergus Falls passed away November 6, 1950, at the age of eighty-eight.

Dr. Drought was born March 4, 1862, in East Prairie, Minnesota, near Northfield. He graduated from the high school in Owatonna and attended Hamline University. After working for the federal government in river and harbor inspection for some time, he attended the University of Minnesota medical school, from which he graduated in 1891. He took postgraduate work at the New York Graduate School Hospital in 1900, 1901 and again in 1919.

In 1892, Dr. Drought came to Fergus Falls to become associated with Dr. A. B. Cole in the practice of medicine.

On August 23, 1899, Dr. Drought was married to Katherine L. Hovey. They were the parents of five children. Surviving are his wife and three daughters: Mrs. Kenneth Keane of Fergus Falls; Mrs. Frederick C. Markwardt of Crosby-Ironton; and Mrs. John A. Field of Wayzata.

Dr. Drought served for many years as a member of the State Board of Medical Examiners and was chairman of the Otter Tail County Sanatorium Board until his death. He was a member of the Park Region County Medical Society, the Minnesota State Medical Association and the American Medical Association.

KENNETH FRATER

Dr. Kenneth Frater, a former fellow in surgery at the Mayo Foundation, died in Capetown, South Africa, in September, 1950.

Dr. Frater was born at Zunder Paarl, South Africa, on February 5, 1897. He received the degree of M.B. Ch.B. in 1923 from the University of Capetown, South Africa. He served in the heavy artillery in France in World War I. He entered the Mayo Foundation in October, 1925 and left in 1928 with a degree of M.S. in Urology from the University of Minnesota. He practiced urology in Capetown. His wife, Ethel Barrow Frater, was formerly a fellow in pathology at the Mayo Foundation. Her address is: Clent Sunnybrae Road, Rondebosch, Capetown, South Africa.

MERLE R. HOON

Dr. Merle R. Hoon of Pittsburgh, formerly a fellow in surgery at the Mayo Foundation, died August 31, 1950.

Dr. Hoon was born April 3, 1892 at Mercer, Pennsylvania. He received the degree of B.A. in 1914 from Westminster College, New Wilmington, Pennsylvania, and M.D. in 1918 from the University of Pennsylvania. He received the degree of M.S. in Surgery from the University of Minnesota in 1922 and had practiced surgery in Pittsburgh since 1923.

ASA M. JOHNSON

Asa M. Johnson was born January 3, 1870, in Northfield, Minnesota, and died from a cardiac infarction November 19, 1950, at St. Luke's Hospital, Saint Paul, Minnesota.

He received his medical degree from the School of Medicine, University of Minnesota in 1896 and thereafter practiced medicine—a span of fifty-four years—in Saint Paul, Minnesota, until his death.

On July 25, 1917, he married Hazel Perry. His wife and daughter, Mrs. Ellen Elwell, and three grandchildren, Eleanor, Priscilla and Edwin III, survive him.

Although devoting most of his time to general practice, he was fond of obstetrics and he and his brother, Dr. Harland Johnson, conducted an extensive obstetric practice for many years.

He was affiliated with St. Luke's and St. Joseph's Hospitals. He served faithfully on several committees of the Ramsey County Medical Society, attended frequently the meetings of the Minnesota Medical Association and the American Medical Association, of which organizations he was a loyal member and supporter.

(Continued on Page 172)

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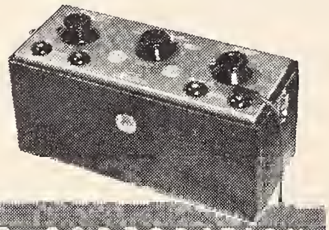

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ASA M. JOHNSON

(Continued from Page 170)

In recognition of fifty years in the practice of medicine, the Minnesota State Medical Association presented him with a gold medal in 1946.

He attended the St. John's Episcopal Church and belonged to the Knights Templar, Osman Shrine and Summit Lodge.

Dr. Asa M. Johnson will be missed for a long time not only by his family and colleagues but also by his many patients and friends. He possessed a pleasant personality, was blessed with common sense, used good judgment, and tolerated almost all the frailties of human nature except sloth and deceit.

J. A. Lepak, M.D.

MARSHALL J. MELIUS

Dr. M. J. Melius, a member of the Henry Clinic at Milaca, Minnesota, since August 7, 1950, was killed outright in an automobile accident November 22, 1950, while en route from Milaca to St. Charles.

Dr. Melius was born December 25, 1924, in Quincy township, Minnesota, but had lived in St. Charles since the age of four. He attended Rochester Junior College and obtained his M.D. degree from the University of Minnesot in 1949. He interned at the County Hospital in Milwaukee for a year and took additional training at St. Joseph's Hospital in Saint Paul.

Dr. Melius is survived by his parents, Mr. and Mrs. John Melius of St. Charles.

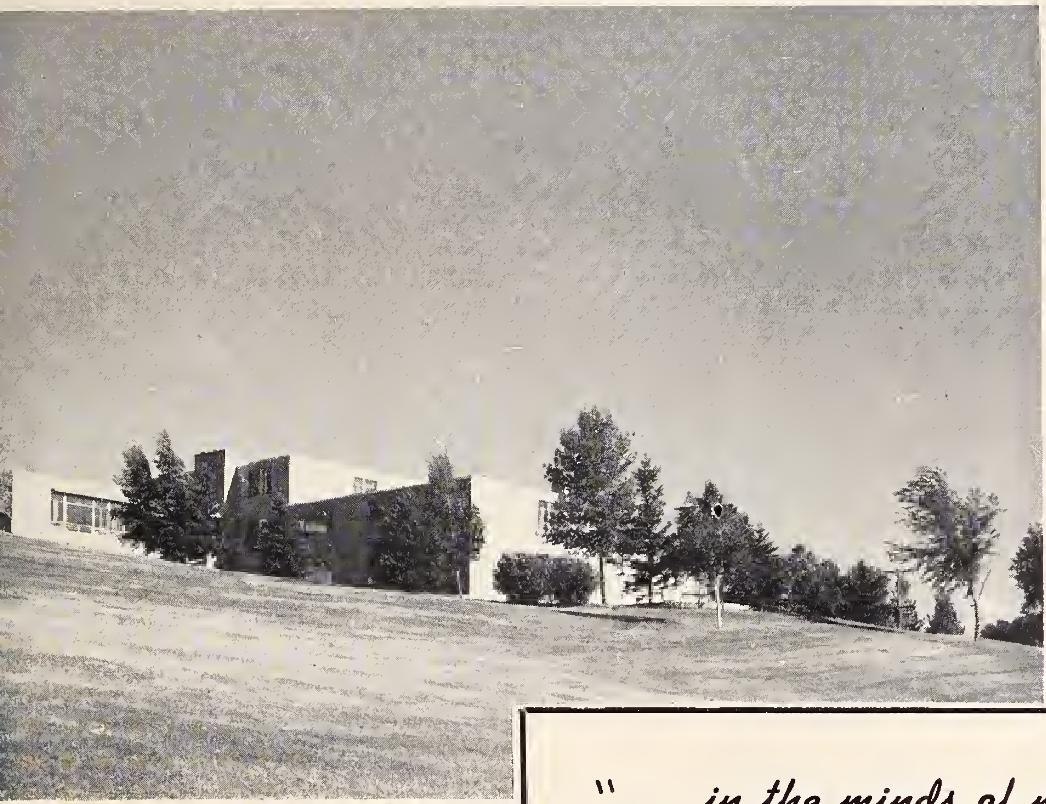
OSCAR OWRE

Dr. Oscar Owre, who played such a prominent part in the development of urology in this region, died December 21, 1950, at the age of seventy.

Dr. Owre was born in Christiania, Norway, February 13, 1880. He obtained his M.D. degree from Hamline University in 1903 and interned at Minneapolis General Hospital. He took postgraduate work in Vienna and specialized in urology. He had been a Fellow of the American Urological Association since 1912 and of the American College of Surgeons, and had been qualified by the American Board of Urology on its organization. He had been Chief of the Urological Department of the Minneapolis General Hospital, former Chief of Staff at Swedish and Norwegian Deaconess Hospitals and Staff urologist at Northwestern, Abbott and St. Mary's Hospitals and Consulting Surgeon to the Northern Pacific Hospital and Glen Lake Sanatorium. He had been Clinical Assistant Professor of Surgery (Urology) at the University of Minnesota Medical School. He was the first president of the Twin City Urological Society, and a member of Hennepin County Medical Society, Minnesota State Medical Association, American Medical Association, and Minnesota Academy of Medicine. He was also a member of the Minneapolis Club, and Alpha Kappa Kappa and Theta Chi fraternities.

Dr. Owre married Katherine Riis, who survives him along with two sons: Jacob Riis Owre, Dean of the

(Continued on Page 174)



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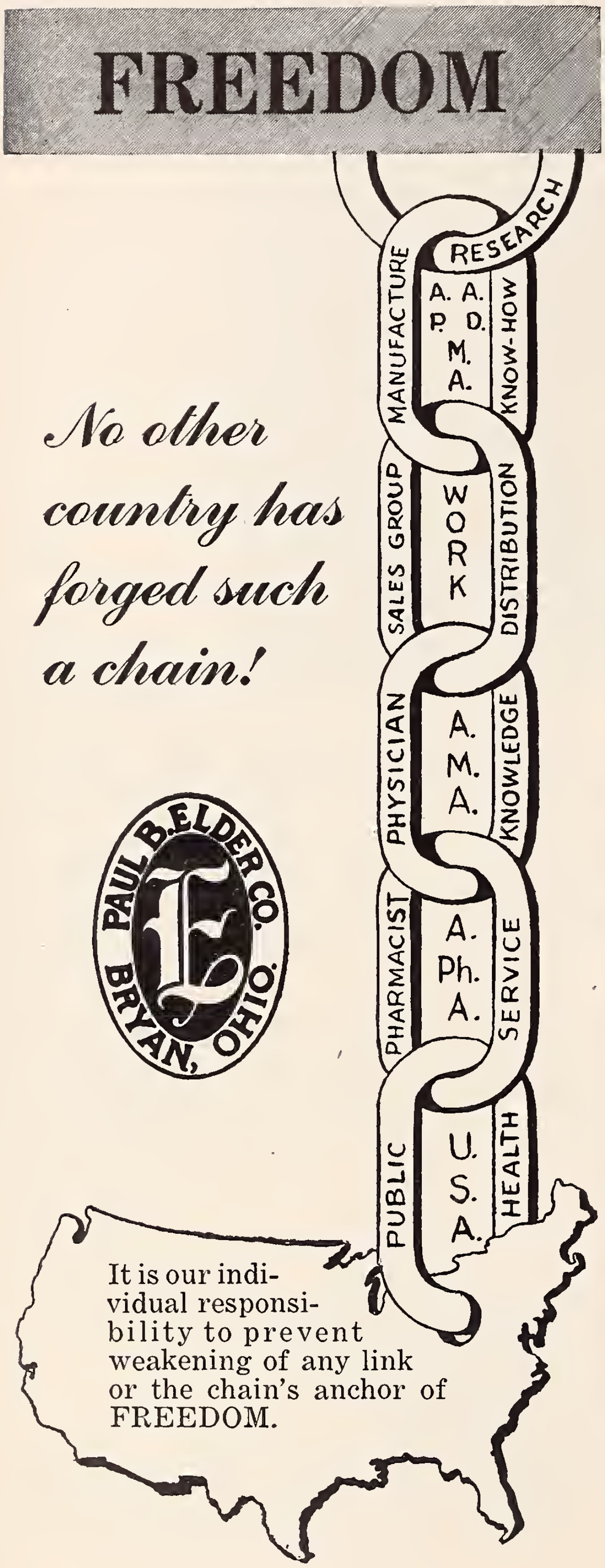
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OSCAR OWRE

(Continued from Page 172)

Graduate School of the University of Miami in Florida, and Oscar T. Owre, a graduate student at the University of Michigan.

CLARENCE WILBUR TAYLOR

Dr. Clarence W. Taylor of Duluth died December 15, 1950 following a long illness.

Dr. Taylor was born in Somerset Center, Michigan, October 19, 1874. While a boy he moved to Duluth with his parents and attended Central High School in Duluth. He obtained his medical degree from Northwestern Medical School, Chicago, in 1900 and practiced at Two Harbors, Minnesota, in 1900 and 1901 before opening an office in Duluth.

Dr. Taylor had been assistant city health officer for the past thirty-eight years and acted as epidemiologist for Duluth.

He married Lulu Davis who with a son, Richard, survives him. He is also survived by his mother, Mrs. Asher Taylor of Duluth, two brothers, Lyman of Willoughby, Ohio, and Asher of Saint Paul and a sister, Mrs. Arthur Hanford of Duluth.

Dr. Taylor was a member of the Methodist Church, the Glen Avon Masonic Lodge, the Duluth Scottish Rite bodies and the St. Louis County Medical Society, the Minnesota State and the American Medical Associations.

MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

(Continued from Page 169)

charging her with the crime of abortion, and a previous conviction for a similar offense. Because of the fact that the defendant suffers from diabetes and is under treatment, Judge Hall placed the defendant on probation for a period of four years. Judge Hall told the defendant that not even her illness would prevent her going to the Women's Reformatory if she violates the law in any manner during the next four years.

Mrs. Perreault was arrested on December 7, 1950, following an investigation by the Minneapolis Police Department and the Minnesota State Board of Medical Examiners. That investigation disclosed that Mrs. Perreault had performed two criminal abortions on November 19, 1950. The abortions were performed at the home of the defendant by use of elm bark. Mrs. Perreault did not ask for any money for performing the abortions and was not paid any money. The defendant has a prior conviction for a similar offense, having pleaded guilty on December 30, 1948, to an information charging her with the crime of abortion and having been sentenced on January 17, 1949, for that offense. Mrs. Perreault has no license to practice any form of healing in the State of Minnesota.

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◆ Reports and Announcements ◆

AMERICAN ACADEMY OF GENERAL PRACTICE

An outstanding program is being offered to those who will attend the annual assembly of the American Academy of General Practice at the Civic Auditorium, San Francisco, March 19 to 22.

An effort has been made to have the scientific program different from the usual in that it will deal with problems peculiar to general practitioners as family physicians, with emphasis on family problems and psychosomatic disorders. Approximately half the scientific exhibits will relate to and supplement the formal teaching periods. The program contains the names of outstanding authorities from the country at large, and the titles are well chosen.

All members of the AMA are invited to attend. There is no registration fee for members: nonmembers are required to pay $5. Residents, interns, medical students and nurses will be admitted without charge upon presentation of credentials. AMA members engaged in general practice are invited to apply for Academy membership. Further details may be obtained from the headquarters of the American Academy of General Practice, Broadway at 34th Street, Kansas City, Missouri. Some will want to obtain information in regard to the AAGP Hawaiian Holiday by sea and air, to follow the meeting.

AMERICAN CONGRESS OF PHYSICAL MEDICINE

The American Congress of Physical Medicine will hold its twenty-ninth annual scientific and clinical session September 4, 5, 6, 7 and 8, at the Shirley-Savoy Hotel, Denver, Colorado. Scientific and clinical sessions will be given on the days of September 4, 5, 6, 7 and 8. All sessions will be open to physicians and other professional personnel. In addition to the scientific sessions, the annual instruction seminars will be held September 4, 5, 6, and 7. These seminars will be offered in two groups. One set of ten lectures will consist of basic subjects and attendance will be limited to physicians. One set of ten lectures will be more general in character and will be open to physicians as well as to therapists, who are registered with the American Registry of Physical Therapists or the American Occupational Therapy Association. Full information may be obtained by writing to the American Congress of Physical Medicine, 30 North Michigan Avenue, Chicago 2, Illinois.

CHICAGO MEDICAL SOCIETY CLINICAL CONFERENCE

The Chicago Medical Society's annual clinical conference will be held at the Palmer House, Chicago, March 6 to 9. The scientific program this year will cover a wide variety of subjects, including ACTH and cortisone, skin diseases, fractures, obstetrics, blood banks, x-ray and laboratory tests.

Registration fee is $5. Hotel reservations should be made directly to the Palmer House.

COURSE IN DISEASES OF THE CHEST

The fourth annual Postgraduate Course in Diseases of the Chest, sponsored by the American College of Chest Physicians, Pennsylvania Chapter and the Laennec Society of Philadelphia, will be presented at the Hotel Warwick, Philadelphia, Pennsylvania, March 26 to 30.

This course will emphasize the recent developments in all aspects of the diagnosis and treatment of chest disease. The course is open to all physicians; however, the number of registrants will be limited. The tuition fee is $50, and applications will be accepted in the order in which they are received. Applications should be sent to the American College of Chest Physicians, 500 North Dearborn Street, Chicago 10, Illinois.

NATIONAL GASTROENTEROLOGICAL ASSOCIATION 1951 AWARD CONTEST

The National Gastroenterological Association announces its annual Cash Prize Award Contest for 1951. One hundred dollars and a certificate of merit will be given for the best unpublished contribution on gastroenterology or allied subjects. Certificates will also be awarded those physicians whose contributions are deemed worthy.

Contestants residing in the United States must be members of the American Medical Association. Those residing in foreign countries must be members of a similar organization in their own country. The winning contribution will be selected by a board of impartial judges, and the award is to be made at the annual convention banquet of the National Gastroenterological Association in September, 1951.

Certificates awarded to other physicians will be mailed to them. The decision of the judges will be final. The Association reserves the exclusive right of publishing the winning contribution, and those receiving Certificates of Merit, in its Official Publication, *The Review of Gastroenterology*.

All entries for the 1951 prize should be limited to 5,000 words, be typewritten in English, prepared in manuscript form, submitted in five copies accompanied by an entry letter, and must be received not later than June 1, 1951. Entries should be addressed to the National Gastroenterological Association, 1819 Broadway, New York 23, N. Y.

CANCER FILM AVAILABLE

The availability of a new medical motion picture entitled "Gastrointestinal Cancer: The Problem of Early Diagnosis" has been announced by Dr. Arthur H. Wells of Duluth, president, Minnesota Division, American Cancer Society. Produced jointly by the American Cancer Society and the National Cancer Institute, this new film is the latest in a distinguished series of lay and professional films first released in 1949.

Dr. Wells pointed out that digestive system cancers account for more than one-fourth of all cancers, and cause about one-half of all cancer deaths. In the

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During the past several years, however, this STABILITY OF INCOME has been impaired by increasing Federal income taxes. The income that invested savings earn, when subject to such taxes, does not enjoy complete STABILITY OF INCOME since a change in the tax rate requires an adjustment in actual "spendable" income received—if taxes rise the effective income is reduced.

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United States, each year, they cause the death of about 47,000 men and 38,000 women.

It is pointed out that this motion picture has been designed to teach that only the physician's high index of early suspicion followed by an accurate diagnosis makes possible the effective treatment of the cancer patient.

The American Cancer Society points out that this film, like its predecessors, uses sound, color and animation to underscore the importance of early diagnosis and treatment. The picture is rich in clinical material. One of the high spots is the camera's record of what can be seen through the proctoscope and the gastroscope. Both normal and abnormal conditions are shown.

The film stresses the theme "Early gastric cancer is probably more difficult to discover than early cancer in any other body site." The five sites of gastrointestinal cancer discussed are esophagus, stomach, small intestine, large intestine and rectum.

The x-ray series, the narrator concludes as the film closes, is "the physician's most reliable diagnostic procedure in the search for gastrointestinal cancer—a procedure which may bring to light an early cancer located anywhere in the gastrointestinal tract—an early cancer and a curable cancer."

The film ends on the theme of previous films in this series: "Only the physician's high index of early suspicion, followed by accurate diagnosis, makes possible the effective treatment of the cancer patient."

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Dr. Wells pointed out that this film is available to professional groups and advanced medical students without charge by writing the Cancer Society's Minnesota Division office, 622 Commerce Building, Saint Paul 1. Accompanying the showing of the film are copies of a summary of the film for distribution to all those seeing it.

POSTGRADUATE ASSEMBLY OF THE COLLEGE OF MEDICAL EVANGELISTS

The postgraduate assembly sponsored by the Alumni Association of the College of Medical Evangelists in Los Angeles will be held at the Biltmore Hotel, Los Angeles, on March 11 to 16.

The six-day convention is especially geared to the needs of the general practitioner. Last year more than 1,000 doctors from California alone attended. Faculty members from the medical schools of the western states and from some midwest schools will present the scientific program.

Three days will be devoted to scientific papers, exhibits and motion pictures; three to practical, special courses in the various specialties, to be given on the campus of the College of Medical Evangelists in Los Angeles. The registration fee for the convention is $10, and for the special courses, $15.

Further information may be obtained from Dr. Jerry L. Pettis, Managing Director, White Memorial Hospital, 312 North Boyle Avenue, Los Angeles 33, California.

POSTGRADUATE COURSE IN PULMONARY DISEASES

A postgraduate course in pulmonary diseases, sponsored by the American Trudeau Society in co-operation with the Marquette University School of Medicine, will be held in Milwaukee, March 26 to 31. The course is intended for physicians who have a special interest and training in pulmonary diseases and who reside in the north central states. Sessions will be held at Marquette University School of Medicine in Milwaukee.

The registration fee is $50, and physicians who are interested should write to the Scholarship Committee, Wisconsin Anti-Tuberculosis Association, 1018 North Jefferson Street, Milwaukee 2, Wisconsin.

TEACHING SEMINAR IN PROCTOLOGY

The International Academy of Proctology will present its first teaching seminar on proctologic subjects, including the more recent developments, in the form of a symposium and round-table discussion.

The session will be held in New York City, April 7.

Registration for the seminar will be limited in number and open to licensed physicians who are members of the American Medical Association; State or County Medical Associations and graduates of an approved medical school. Admission to the seminar will be by card only. Preference in registration will be given to those affiliated with the International Academy of Proctology.

For registration or further information communicate with Dr. William Lieberman, Chairman, Seminar Committee, International Academy of Proctology, 1819 Broadway, New York 23, N. Y.

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CONTINUATION COURSES

Fractures and the Surgery of Trauma.—A course in fractures and the surgery of trauma will be presented for general physicians and surgeons at the Center for Continuation Study by the University of Minnesota March 1 to 3. Dr. Carl E. Badgley, professor of surgery in charge of orthopedic surgery, University of Michigan, will be the visiting faculty member for the course and will also present the annual Clarence M. Jackson Lecture sponsored by the Phi Beta Pi Medical Fraternity. The subject of the Jackson Lecture will be, "Fractures About the Hip—Early and Late Therapy." All interested physicians are invited to attend this lecture.

Pediatrics for General Physicians.—The University of Minnesota announces a continuation course in pediatrics to be presented March 26 to 28 at the Center for Continuation Study. The course is intended for general physicians and will be devoted to the fields of infectious diseases and common orthopedic problems in infants and children. Visiting faculty members for the course will be Dr. Ralph V. Platou, professor and head of the Department of Pediatrics, Tulane University of Louisiana, New Orleans, and Dr. William L. Bradford, Associate Professor of Pediatrics, University of Rochester, New York.

Diseases of the Blood in Infancy and Childhood.—Doctors William Dameshek, professor of clinical medicine, Tufts University School of Medicine, Boston, Massachusetts; Clement A. Finch, associate professor of medicine, University of Washington School of Medicine, Seattle, Washington, and Robert W. Heinle, associate professor of medicine, Western Reserve University School of Medicine, Cleveland, Ohio, will participate in a continuation course on diseases of the blood in infancy and childhood, to be presented at the Center for Continuation Study, April 16 to 18. The course is given under the direction of Doctors Irvine McQuarrie and Charles D. May, Department of Pediatrics, University of Minnesota.

JOHN W. BELL TUBERCULOSIS LECTURE

Dr. David T. Smith, president of the National Tuberculosis Association, will present the sixteenth annual John W. Bell Tuberculosis Lecture before members of the Hennepin County Medical Society on March 5 at 8:00 p. m. His subject will be "Extra-pulmonary Tuberculosis."

The lecture will be given in the auditorium of the North American Life and Casualty Building.

Dr. Smith is a professor of bacteriology and associate professor of medicine in the School of Medicine of Duke University, Durham, N. C. He is the author of many articles on pulmonary infections, brucellosis, tularemia and immunology.

The John W. Bell Tuberculosis Lectureship was established in the Hennepin County Medical Society by the Hennepin County Tuberculosis Association in 1934. It honors the late Dr. Bell, internist, teacher and con-

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sultant, who practiced medicine in Minneapolis for fifty-one years.

A joint committee of the Medical Society and the Tuberculosis Association select the speaker and the subject for each lectureship. Members of the 1951 Bell Lecture Committee are Doctors Charles E. Merkert, Thomas Lowry, C. R. Wall, and Gaylord Anderson, representing the medical society; and Doctors E. P. K. Fenger, Robert J. Tenner and Stewart C. Thomson, the tuberculosis association.

POSTGRADUATE SEMINARS IN MINNESOTA

The Minnesota State Medical Association and the University of Minnesota Medical School will present a second series of regional postgraduate seminars for physicians beginning the week of March 19.

Each postgraduate course or seminar series will consist of eight weekly evening meetings, each of approximately two hours' duration. Clinical and full-time members of the faculty of the Medical School and the Mayo Foundation in Rochester will participate in these courses which will emphasize diagnosis and management of those conditions most important to the practicing physician.

The titles of the courses and the Minnesota cities in which each will be presented are as follows:

Dermatology	St. Cloud
Electrocardiography	Mankato
Fractures and Traumatic Surgery	Rochester
Gynecology	Alexandria
Obstetrics	Bemidji
Pediatrics	Duluth

Tuition for the courses will be $25.

In addition, the Minnesota State Medical Association and the University of Minnesota Medical School will again participate along with the Minnesota Department of Health, the Minnesota Cancer Society, and the Minnesota Heart Association in presenting postgraduate seminars in cancer, cardiovascular diseases, and psychosomatic medicine for physicians in the areas surrounding Slayton and Albert Lea. There is no tuition fee for these seminars, since they are given with the financial support of the Minnesota Department of Health Cancer and Heart Disease Control Divisions.

SAINT PAUL SURGICAL SOCIETY

The Saint Paul Surgical Society held a dinner meeting at the Minnesota Club, Saint Paul, on the evening of January 17 in honor of Dr. Owen H. Wangensteen and his development of intestinal decompression over the past twenty years. Over 200 members and their guests attended.

Dr. Alfred Blalock, chief surgeon of Johns Hopkins Medical School, was the guest speaker and discussed the subject of cardiac surgery, of which he has been one of the pioneers. His address included a color motion picture of his operation of commisurotomy for mitral stenosis.

Following his address, he paid tribute to Dr. Wangensteen and his outstanding work at the University of Minnesota Medical School, and he emphasized the benefits to patients in the relief of pain and avoidance of

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operation resulting from the intestinal decompression procedure. He took advantage of the occasion to present Dr. Wangensteen with a colored reproduction of a painting of Dr. William Stewart Halstead of Johns Hopkins. In a lighter vein he also presented him with a photograph of himself fitted with a nasal tube in action and with inscribed words suggested by the poet Ogden Nash: "May I find my final rest in Owen Wangensteen's intestine, knowing that his masterly suction will assure my resurrection." We trust that Mr. Nash will not object to the repetition of his hastily thought-up legend.

BLUE EARTH COUNTY SOCIETY

At a meeting of the Blue Earth County Medical Society in Mankato on December 18, Dr. M. I. Howard was elected president of the organization. Other officers elected include Dr. Benjamin Geurs, vice president, and Dr. William Chalgren, secretary-treasurer. All officers are from Mankato.

BLUE EARTH VALLEY SOCIETY

Dr. E. E. Zemke, Fairmont, was named president of the Blue Earth Valley Medical Society at a meeting of the group late in November. The society includes physicians of Martin and Faribault Counties. Also named to office were Dr. George Drexler, Blue Earth, vice president, and Dr. Herbert Boysen, Madelia, re-elected secretary-treasurer.

Guest speaker at the meeting was Dr. Edmund Flink, of the University of Minnesota, who discussed cortisone.

RED RIVER VALLEY SOCIETY

At the annual business meeting of the Red River Valley Medical Society in Crookston on December 19, Dr. Lester N. Dale, Red Lake Falls, was elected president of the group for 1951. Dr. Adrian R. Jensen Crookston, was named vice president, and Dr. R. O. Sather, Crookston, was re-elected secretary-treasurer.

Two new members were received into the society: Dr. Alan McKaig, Red Lake Falls, and Dr. Dan Valenti, Thief River Falls.

SAINT LOUIS COUNTY SOCIETY

Members of the St. Louis County Medical Society at a meeting in Duluth on December 14 named Dr. P. F. Eckman, Duluth, president-elect of the organization. At the meeting Dr. O. L. McHaffie, Duluth, took over as president for 1951.

The society, which elects officers a year in advance, also named to office Dr. F. R. Kotchevar, Eveleth, vice president, and Dr. R. H. LaBree, Duluth, secretary-treasurer.

Principal speaker at the meeting was Dr. Harold S. Diehl, dean of medical sciences at the University of Minnesota, who presented his observations during a recent survey of the British medical system.

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RED RIVER VALLEY AUXILIARY MEETS

The December meeting of the Red River Valley Medical Auxiliary was held at the home of Dr. and Mrs. Martin Janssen, Crookston. The meeting followed a joint dinner meeting with the Red River Valley Medical Society at the Crookston hotel.

Auxiliary members remained after the dinner to hear an address by F. Manley Brist, St. Paul attorney.

Mrs. J. F. Norman, Crookston, presented a report on public relations, followed by a report on the TB essay contest by Mrs. C. L. Oppegaard, president. The magazine subscription contest report was given by Mrs. Martin Janssen. Mrs. C. G. Uhley and Mrs. O. G. Behr were appointed on the nominating committee for the coming year.

CHAIRMAN REPORTS SUBSCRIPTION INCREASE

Mrs. P. S. Rudie

The Bulletin chairman reports a decided increase in subscriptions to the Auxiliary textbook, but not nearly enough. This valuable textbook or manual should be in the possession of every active working auxiliary member.

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HENNEPIN COUNTY PLANS BUSY YEAR

Mrs. Virgil J. Schwartz, President

The Woman's Auxiliary to the Hennepin County Medical Society opened the calendar year with a tea at the home of Mrs. Clyde Cabot, October 6, 1950, commemorating its fortieth anniversary. Honor guests were Mrs. Walter Judd, Washington, D. C.; Mrs. Harold Wahlquist, President-Elect, Woman's Auxiliary to the American Medical Association; and fifty-eight new members.

Mrs. Robert P. Caron entertained the auxiliary members at a dessert luncheon on November 3, 1950. At this meeting a memorial was held for the President-Emeritus, Mrs. W. J. Byrnes, who died October 21, 1950. She was the first president of Hennepin county auxiliary, and was an active member throughout the years. On November 8, 1950, under the direction of Mrs. Henry Quist, Sr., members assisted in assembling the Christmas Seal letters for the Hennepin County Tuberculosis Association. Thursday and Friday, November 9 and 10, 1950 were devoted to the sale of articles made by Glen Lake patients at the sanatorium. The sale netted $2,700, the proceeds going to the patients. Mrs. Frank T. Cavanor and Mrs. F. H. K. Schaaf acted as chairmen.

The December 1 meeting was held at General Hospital, where an interesting musical program, including the Nurses' Choir of General Hospital, was presented.

On January 5, 1951, the New Year's luncheon was held at the clubhouse of the American Association of University Women. The regular formal program followed, featuring a talk on the history of music by Mr. Wilbur F. Swanson, formerly professor of music at Gustavus Adolphus College.

CHAIRMAN URGES MORE SUBSCRIPTIONS

Mrs. O. M. Heiberg

The slogan for this year is *"Today's Health* in every doctor's office—every AMA member a subscriber." It is important that each member follow through and be personally responsible for finding out if *Today's Health* is in her doctor-husband's office. The magazine is excellent as a gift subscription to a friend, or it could be placed in a public gathering place such as a train depot, beauty shop or barber shop.

This subscription drive is the responsibility of each auxiliary member. Promotion of the sale of this periodical has been urged by the National auxiliary. Members should become familiar with *Today's Health.* Subscriptions can be sent to the county *Today's Health* chairman or to Mrs. O. M. Heiberg, 604 Lake Avenue, Worthington, Minnesota.

PERIPHERAL NEURITIS

(Continued from Page 147)

pears to develop when there is a greatly increased spinal fluid pressure.

Summary

Two cases of generalized peripheral neuritis secondary to polycythemia vera have been described. Although the complaints of numbness and tingling in the extremities are frequent in polycythemia, the occurrence of objective peripheral neuritis is rare. Other neuropsychiatric complications in polycythemia vera are frequent. Many vague and nonfocal neurological symptoms occur. Focal neurological lesions are less common but of more serious nature and are usually due to vascular thromboses. Certain features of polycythemia which may easily lead to errors in diagnosis are emphasized.

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Of General Interest

The Diabetes Detection Survey undertaken during the week of November 12, 1950, was particularly successful in Minneapolis. During the week 24,346 specimens of urine were deposited at conveniently located drug stores and were tested at the City Health Department's laboratory. Of this number, 534 were reported positive, and the individuals concerned were notified and advised to consult their family physicians. It was reported by 139 physicians that the survey was instrumental in discovering forty-six previously unknown diabetics and thirty-five others who already knew of the existence of diabetes.

* * *

Dr. Paul Klemperer, of Mt. Sinai Hospital, New York, will deliver the annual Phi Delta Epsilon Lecture at the Museum of Natural History, University of Minnesota, at 8:15 p.m. on April 5. His subject will be "The Concept of Collagen Diseases."

* * *

Dr. Paul J. Keith, formerly of Saint Paul, joined the staff of the Henry Clinic in Milaca on December 18. A graduate of the University of Minnesota Medical School, Dr. Keith served his internship at the Denver General Hospital, Denver, Colorado.

* * *

Sister Elizabeth Kenny sailed for England on the Queen Mary on December 16. After holding final conferences with Kenny Foundation workers in England, Czechoslovakia, Germany, Belgium, Ireland and France, she planned to sail for her native Australia on January 4.

* * *

Medical experts from California and Denmark delivered three special lectures at the **University of Minnesota** during January and February.

Dr. Johannes Clemmesen, director of the Danish Cancer Registry and professor of pathology at the University of Copenhagen, Denmark, presented the George Chase Christian Lecture in cancer research on January 18. He spoke on "Research in Human Cancer, Problems and Results."

Dr. Horace W. Mogoun, professor of anatomy at the new school of medicine at the University of California at Los Angeles, discussed "Wakefulness and Sleep" when he presented the annual J. B. Johnston Lecture in neurology on January 30.

Dr. Emil Holman, professor in surgery at Stanford University, gave the eighteenth annual E. Starr Judd Lecture in surgery on February 15. His topic was "Surgical Treatment of Constrictive Pericarditis."

* * *

Dr. L. R. Lima, of Montevideo, attended a clinical chemistry course at the University of Minnesota on December 7, 8 and 9.

* * *

It was announced late in December that **Dr. Harris T. Hinderacker** would open offices for the practice of medicine in Bird Island during the first week of January. A graduate of Northwestern University, Dr. Hinderacker served his internship at Ancker Hospital, Saint Paul.

* * *

General Motors has announced the establishment of a $1,500,000 research project to promote better health for its 446,000 employes as well as those of all American industry. It has established in conjunction with the University of Michigan the Institute of Industrial Health at Ann Arbor, the objectives of which will be research, education and service in industrial medicine, health and safety. Five hundred thousand dollars of the sum allocated will be used for equipment, and $100,000 a year for ten years is to be allocated to meet the expenses of fellowships, scholarships, additional faculty, refresher courses, and the like—all devoted to the betterment of the health of workers.

* * *

Dr. J. K. Hartjen has moved into new offices in Bemidji. His present offices are located at the corner of Fifth and Beltrami Avenue.

* * *

Dr. John F. Briggs, Saint Paul, was principal speaker in behalf of the Minnesota Heart Association for the launching of the 1951 drive for funds in Hennepin County and Ramsey County in January. The meetings were sponsored by the Minnesota State Life Underwriters.

* * *

Dr. A. S. Brussell has been approved by the Dean's Committee of the Southwestern Medical School, Dallas Branch of the University of Texas, and appointed to the position of chief of professional services, Veterans Administration Hospital, Dallas, Texas. Prior to this appointment he was chief medical officer at the Veterans Administration Regional Office in San Antonio.

* * *

Dr. E. M. Hammes, Saint Paul, was principal speaker at the Appreciation Day for Dr. E. C. Gaines of Buffalo Lake on December 10. At ceremonies honoring Dr. Gaines for fifty years of medical service in the area, Dr. Hammes spoke on "The Family Physician."

* * *

According to the **Public Health Service,** more cases of whooping cough were reported during 1950 than in recent years—a total of 118,797 cases. Disease rates, however, for diphtheria, smallpox and typhoid declined. There were only thirty-four cases of smallpox in the country in 1950, compared with 48,907 in 1930.

* * *

Dr. Russell M. Wilder, former head of the Department of Medicine at the Mayo Foundation and senior medical consultant at the Mayo Clinic, has been ap-

(Continued on Page 186)

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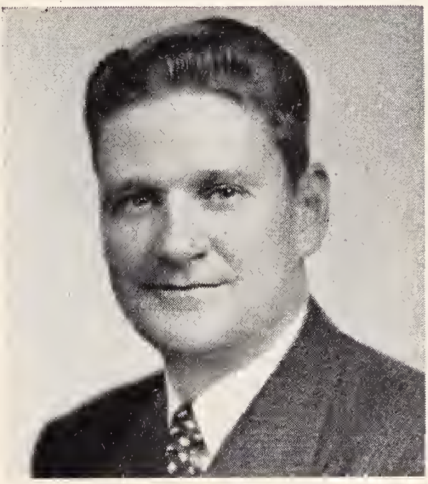

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(Continued from Page 184)

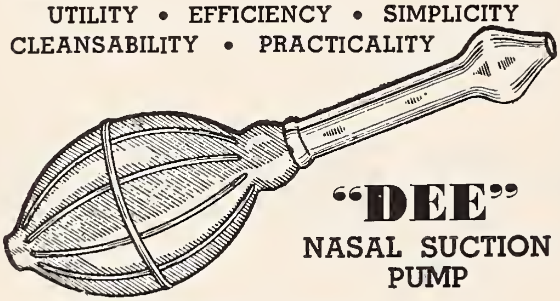
pointed director of the new Institute of Arthritis and Metabolic Disease. Dr. Floyd F. Daft, acting director of the Institute of Experimental Biology and Medicine, will be associate director. The new institute is absorbing Experimental Biology and Medicine, including its funds, and will continue the work of that institute.

* * *

Dr. Edward Q. Ertel, of Ellendale, was named first-place winner of the Christmas home decoration contest conducted in Ellendale in December.

* * *

Dr. Hilbert Mark, director of the Division of Tuberculosis Control of the Minnesota Department of Health since 1937, left on January 1 to assume directorship of tuberculosis control for the city and county of Denver, Colorado. In Denver he will head a tuberculosis clinic, a section of the general hospital, and a part of the University of Denver Medical School.



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Surgical Technic, Surgical Anatomy and Clinical Surgery, four weeks, starting March 5, April 2, April 30.
Surgical Anatomy and Clinical Surgery, two weeks, starting February 19, March 19, April 16.
Surgery of Colon and Rectum, one week, starting March 5, April 9.
Basic Principles in General Surgery, two weeks, starting April 2.
Gallbladder Surgery, ten hours, starting April 23.
Fractures and Traumatic Surgery, two weeks, starting March 19.
GYNECOLOGY—Intensive Course, two weeks, starting February 19, March 19.
Vaginal Approach to Pelvic Surgery, one week, starting March 5, April 2.
OBSTETRICS—Intensive Course, two weeks, starting March 5, April 2.
MEDICINE—Intensive General Course, two weeks, starting April 23.
Gastro-enterology, two weeks, starting May 14.
Gastroscopy, two weeks, starting March 5.
Electrocardiography and Heart Disease, two weeks, starting March 19.
PEDIATRICS—Intensive Course, two weeks, starting April 2.
One Year Full Time Course starting July 2.
Informal Clinical Course every two weeks.
UROLOGY—Intensive Course, two weeks, starting April 16.
Cystoscopy, Ten Day Practical Course, every two weeks.

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* * *

Mr. William Griffiths, who has served as director of the Division of Public Health Education since the division was created in 1946, left in January for the University of California to be on the faculty of the School of Public Health. He had been with the Department of Health since 1940. Before assuming directorship of the Division of Public Health Education, he served as a health educator in the Division of Preventable Diseases and as supervisor of the unit of Health Education Services.

* * *

Dr. George E. Moore, a member of the Department of Surgery at the University of Minnesota Hospitals, was awarded the Samuel D. Gross prize by the Philadelphia Academy of Surgeons for his work in devising a test for locating brain and spinal cord tumors. A radioactive dye injected into a vein concentrates in tumor tissue, which can then be located by means of a Geiger counter.

* * *

Dr. Paul B. Magnuson, medical director of the Veterans Administration since 1948, was replaced by Vice Admiral Joel T. Boone on January 15. Dr. Magnuson's resignation has been in the hands of Administrator Carl R. Gray for the past two and one-half years and has now been accepted. The two have been at variance, it is said, on administrative policies.

* * *

The Minnesota State Association of Life Underwriters is participating with the Minnesota Heart Association in the **1951 Heart Campaign** on a statewide basis. Nine area vice chairmen have assumed responsibility for the campaign in their given territories. Where local heart committees are functioning the Life Underwriters offer their co-operation and services to the existing committees. In other localities Life Underwriters are acting as chairmen of the local heart campaign.

* * *

Dr. Ernest Hanson, formerly associated with the Raiter Clinic in Cloquet, has replaced Dr. E. A. Pasek in Carlton. Dr. Pasek, after a year of practice in Carlton, was alerted on December 1 for duty with the United States Air Force.

* * *

Dr. Peter J. Kitzberger has taken a year's leave of absence from the Seifert Clinic in New Ulm to be a resident in obstetrics and gynecology at St. Mary's Hospital, Minneapolis. Dr. Kitzberger became associated with the Seifert Clinic in November, 1948, and he plans to return there in January, 1952.

* * *

Dr. Robert W. Goltz and **Dr. Edward Gudgel** were placed on the honor roll at the last examination conducted by the American Board of Dermatology and Syphilology because of unusually high marks. Both

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men were trained at the University of Minnesota, with Dr. Goltz working at General Hospital and the University Hospitals, and Dr. Gudgel at Ancker Hospital, Saint Paul.

* * *

Dr. Walter C. Alvarez, formerly of the Mayo Clinic, has announced the opening of offices at 700 North Michigan Avenue, Chicago, Illinois, with practice limited to consultations in internal medicine.

* * *

Two faculty members from the University of Minnesota School of Nursing, **Thelma Dodds** and **Florence Julian**, are attending a five-month workshop on nursing service administration at the University of Chicago. Miss Dodds is assistant professor of nursing, director of nurses at Charles T. Miller Hospital, Saint Paul, and president of the Minnesota State Board of Examiners of Nurses. Miss Julian is instructor and assistant director of nursing services at the University Hospitals.

* * *

The National Foundation for Infantile Paralysis is offering a limited number of predoctoral and postdoctoral fellowships in medicine and the related biological and physical sciences to candidates whose interest is research and teaching. Candidates for an M.D. or Ph.D. or an equivalent degree are eligible for a year's fellowship with an accompanying stipend of $1,200 to $1,800. Those with an M.D. or Ph.D. or an equivalent degree may obtain one to five-year fellowships with a $3,600 to $7,000 stipend. Applications for the November selection should be received by September 1, 1951. Inquiries should be addressed to the Director of Professional Education, National Foundation for Infantile Paralysis, 120 Broadway, New York 5, New York.

* * *

New part-time medical director of District 8 of the Minnesota Department of Health is **Dr. A. M. Watson** of Royalton. He succeeds Dr. E. J. Simons, formerly of Swanville, now living in Minneapolis. Dr. Watson has practiced in Royalton since 1905.

* * *

Dr. Lloyd F. Sherman, Minneapolis, was the principal speaker at the annual meeting of the Barron-Washburn-Sawyer-Burnett Medical Society at Rice Lake, Wisconsin, in December.

* * *

The Red Lake Falls Clinic has moved into newly remodeled quarters in the Asiala Building at Red Lake Falls. The clinic is staffed by **Dr. L. N. Dale** and **Dr. Allan McKaig.**

* * *

Universities and research centers in sixteen states and Canada have been granted one and one-half million dollars for **infantile paralysis research** and professional education by the National Foundation for Infantile Paralysis, the organization supported by the March of Dimes. Means of prevention of the disease and better methods of treatment of afflicted patients are the main goals sought.

The new grants bring the total spent for research and education by the foundation since 1938 to over 25 million dollars, and for patient care to 102 million dollars.

* * *

The residents of Spring Grove and the surrounding community paid tribute to **Dr. G. M. Helland** at a simple ceremony at the doctor's bedside on December 22. In appreciation of his years of service, a monetary gift and an engraved plaque were presented to the doctor. Dr. Helland began practice at Spring Grove in 1910 and served the community for thirty-five years. Six years ago he was forced to retire because of ill health.

* * *

Dr. Catherine Burns, a native of Albert Lea who has practiced there for slightly more than a year, was named "Woman of the Week" in a feature story about her career in the *Albert Lea Tribune* on December 29. A graduate of the University of Minnesota Medical School, Dr. Burns served her internship at University and St. Barnabas Hospitals, Minneapolis.

* * *

Dr. H. E. Drill of Hopkins was elected president of the Minneapolis chapter of the American Academy of General Practice at a meeting of the organization on December 11.

* * *

Dr. William L. Benedict, Rochester, was the 1950 winner of the Leslie Dana Medal, a national award given for outstanding achievement in preventing blindness. The medal was presented to Dr. Benedict at a dinner in St. Louis on January 26. Dr. Benedict is professor of ophthalmology at the Mayo Foundation.

HOSPITAL NEWS

Results of recent staff elections at several Minnesota hospitals are as follows:

Asbury Hospital, Minneapolis.—Dr. H. A. Alexander, president; Dr. R. B. Potter, vice president; Dr. R. E. Nord, secretary-treasurer.

St. Mary's Hospital, Detroit Lakes.—Dr. William C. Dodds, president; Dr. G. G. Haight, vice president; Dr. Cherry Cedarleaf, secretary-treasurer.

Riverview Memorial Hospital, Saint Paul.—Dr. C. R. Chadbourn, chief-of-staff; Dr. T. A. Lowe, assistant chief-of-staff; Dr. James T. Larson, secretary; Dr. James Travis, records committee chairman.

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For 1951, Blue Shield has resolved to clear all correspondence within 72 hours after it comes in. All reports will be streamlined to give more information with less effort. Allowance checks will be mailed within two weeks after the service report form is received. (Cases that require additional information or checking will naturally take longer; however, a report will be mailed to the physician indicating whatever progress is made on the case, or the reason for delay.)

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ARRHENOBLASTOMA

(Continued from Page 154)

patient experienced a normal pregnancy during an apparently spontaneous remission in function of the neoplasm, prior to its removal. Of additional interest is a six-year follow-up, subsequent to surgical removal of the tumor, during which time no recurrence has appeared and the patient has had two more normal pregnancies.

Addendum

Since the writing of this paper the patient's pregnancy terminated in the spontaneous delivery of a normal female infant. Her postpartum course has been without incident to this time (Feb. 3, 1951).

Grateful acknowledgment is made to Dr. W. V. Knoll, present pathologist at St. Mary's Hospital in Duluth, for his valuable assistance in the study of the microscopic sections and in the preparation of the photomicrographs.

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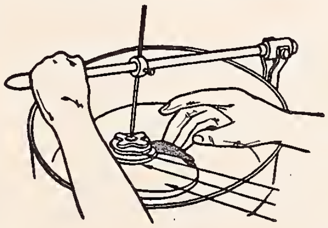

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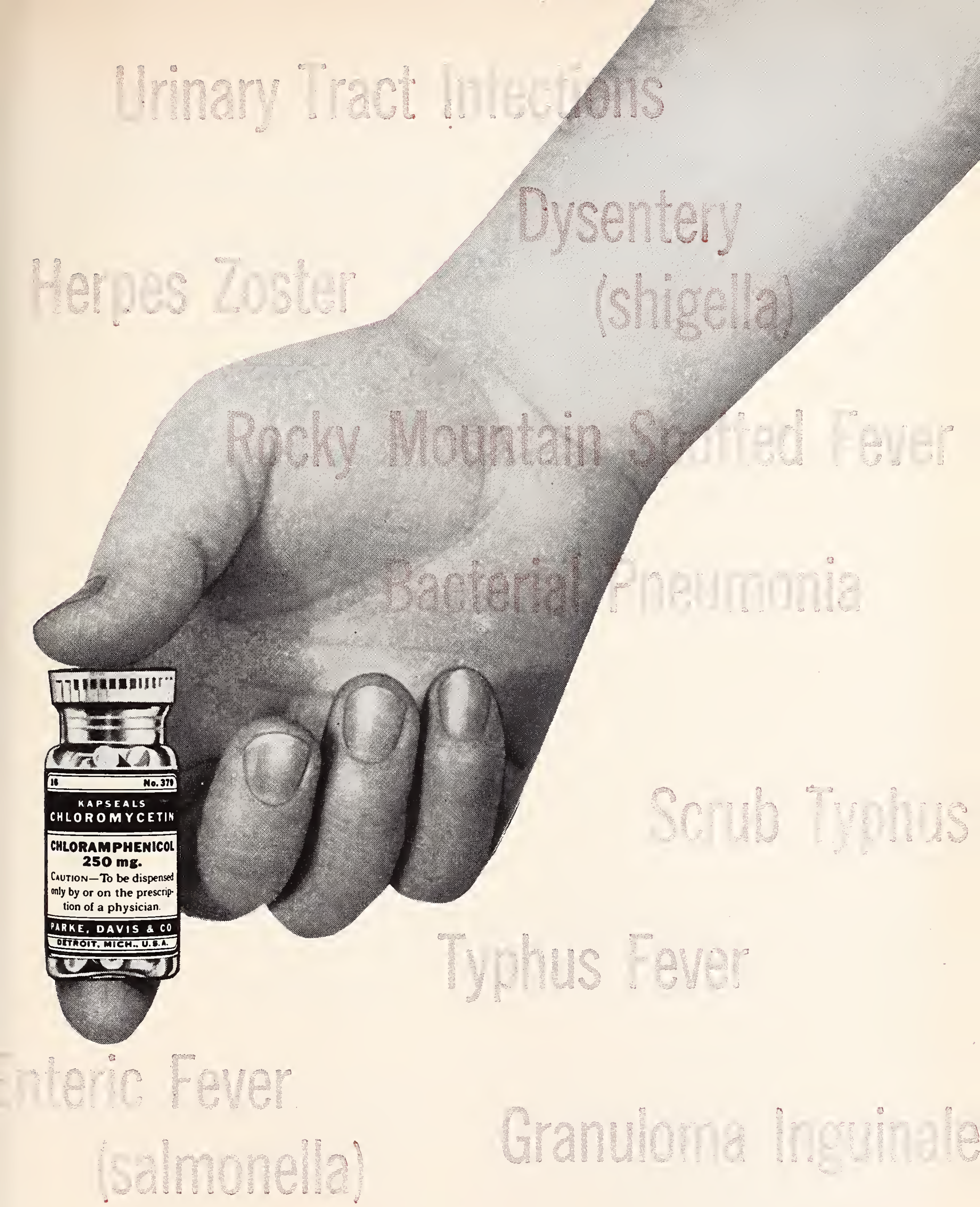
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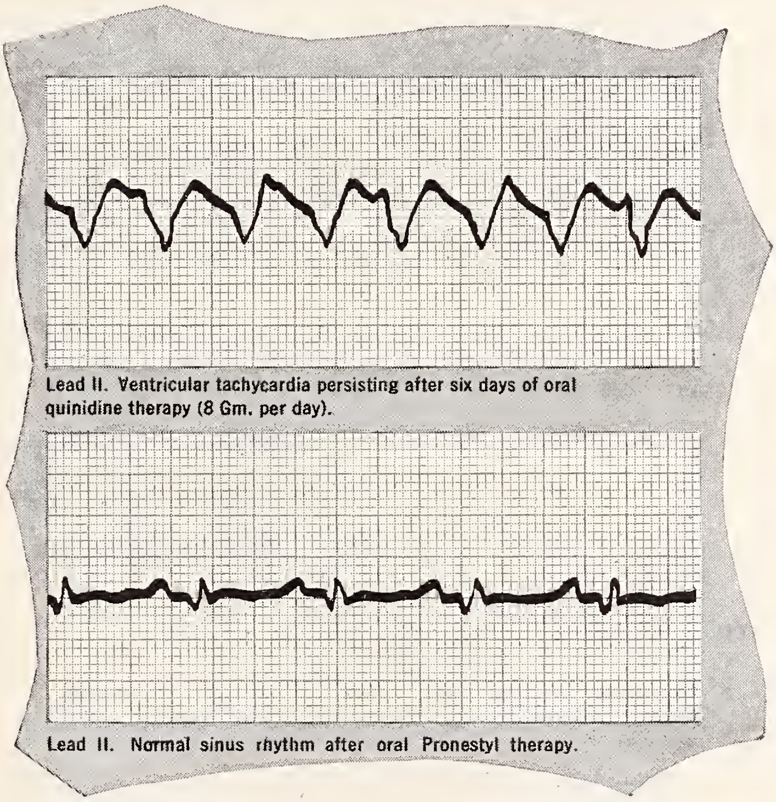

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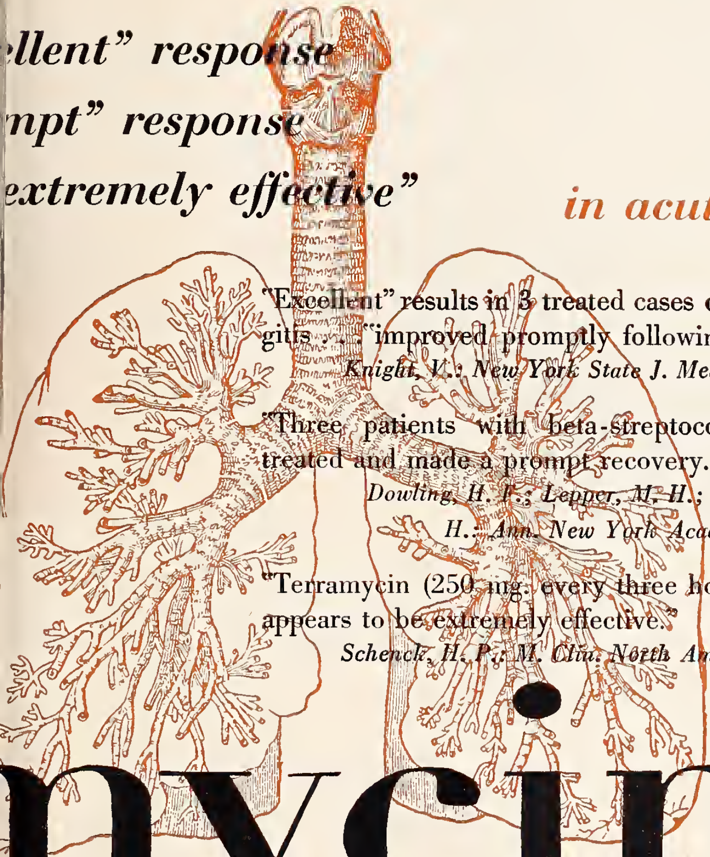

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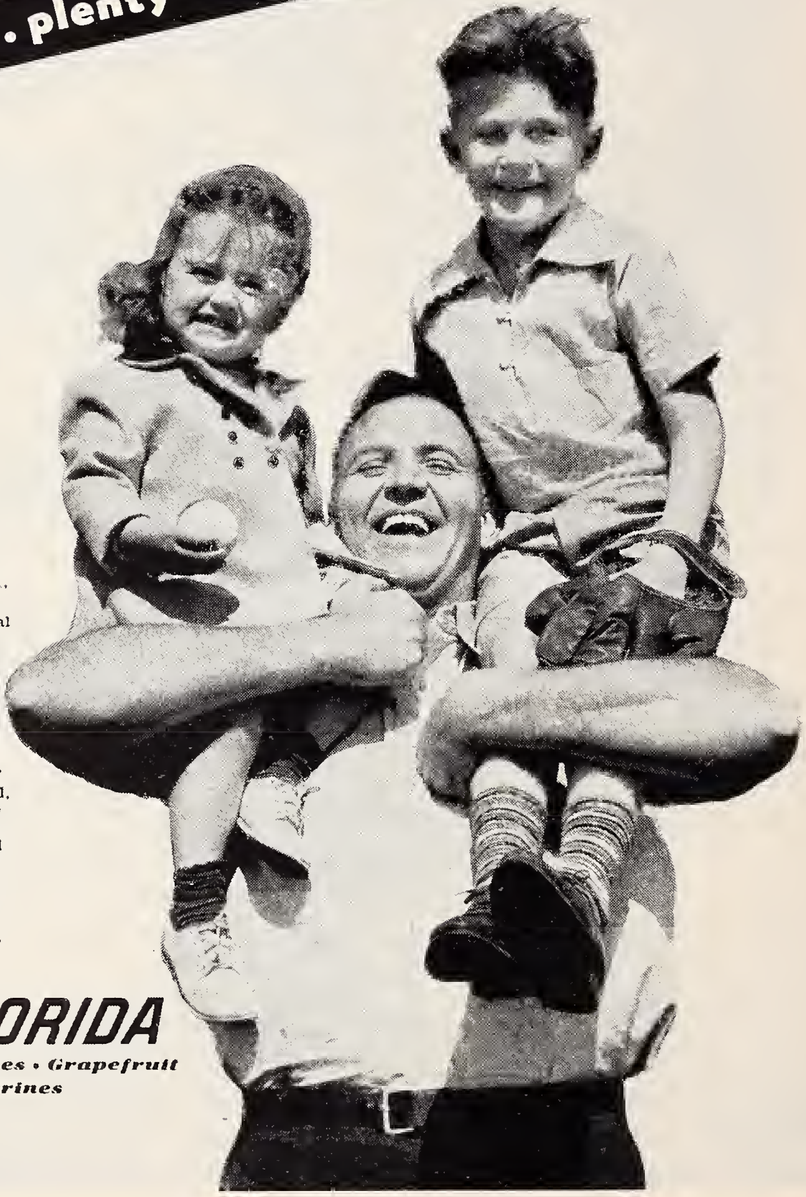

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*Hill, L. W.: New England J. Med. 242:288, 1950

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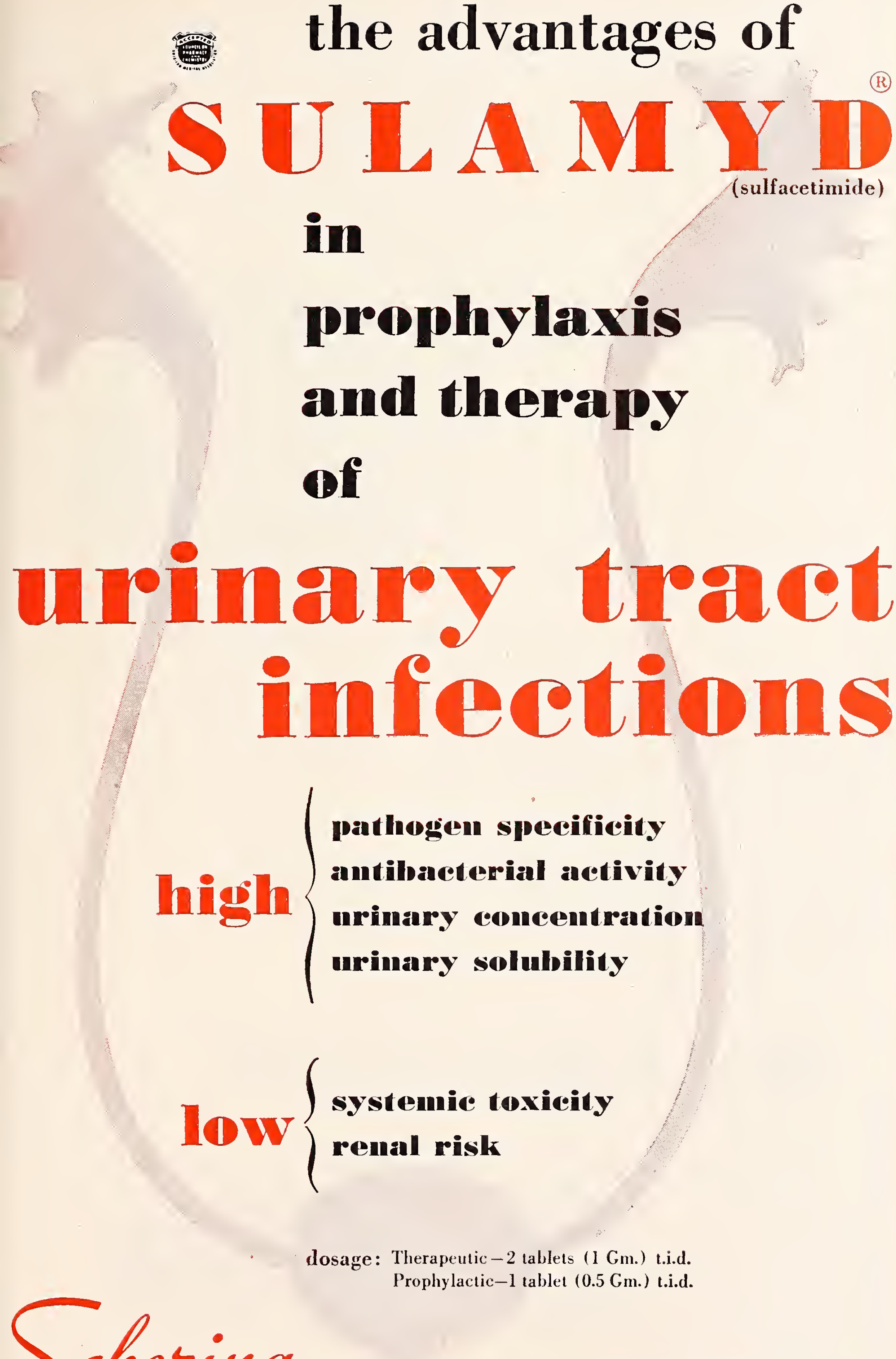

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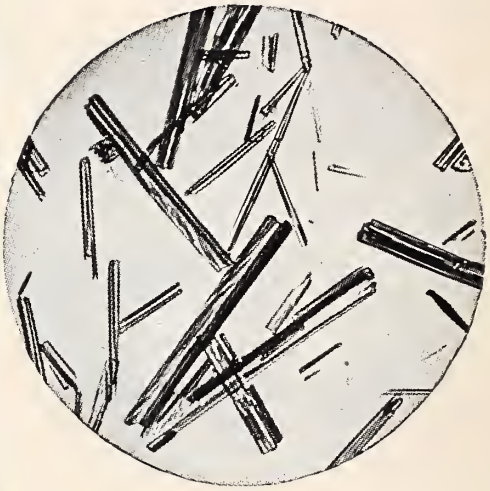

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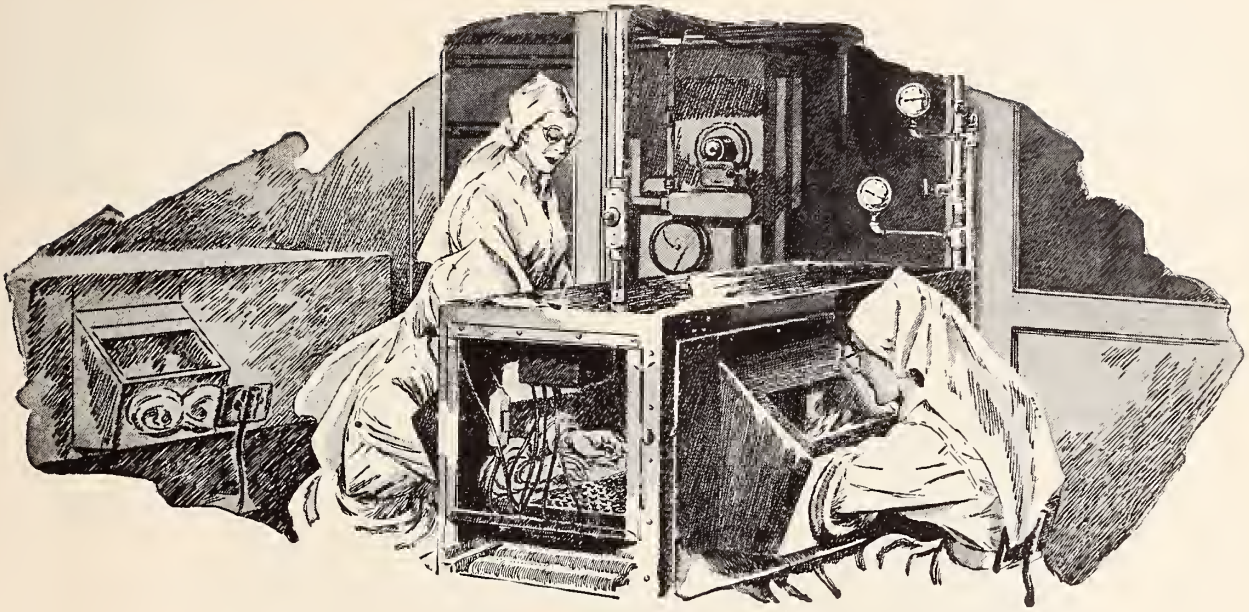

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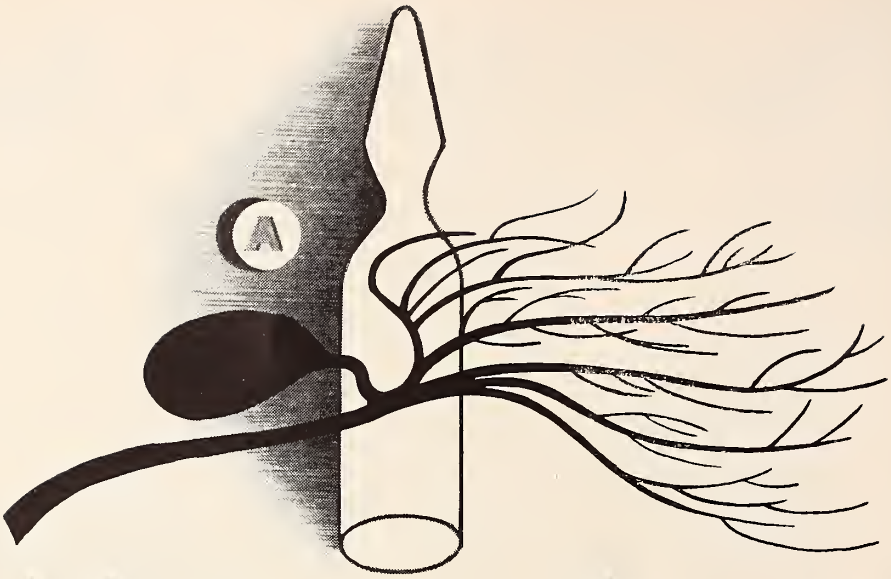

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Minnesota Medicine

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

Volume 34 **March, 1951** **No. 3**

HUMAN RELATIONS—INTERNATIONAL AND LOCAL

WARNER OGDEN, M.D.

Saint Paul, Minnesota

THE appalling succession of international catastrophes which have occurred during the past few months have caused all of us to look upon the future with serious apprehension. We have quite properly been inclined to blame the activities and policies of the postwar years for the mess in which we find ourselves, and certainly the present world crisis has followed hard upon inadequate, unintelligent, and dishonest efforts on the part of the heads of various nations, including our own, to solve international problems. In starting to prepare this address, I had at first a feeling of great futility, a feeling that a discussion of political medicine in the nation, or of medical difficulties in this state, or in this county society, would be totally superfluous.

And yet, as one tries to analyze the world dilemma, the confusion and bickering in Washington, or the minor difficulties in our local medical society, one fact stands out which is all important, one fact stands out which is common to any groups which are interdependent and compelled to work with one another. This fact is the difficult problem of human relations. And no large nations, or small groups, can get along together who do not recognize the vital necessity for the solution of this problem.

Du Nouy, in his book entitled "Human Destiny," presents man as a creature of evolution, slowly struggling up from the swamps of prehistoric time. To me he seems to prove rather effectively that this evolution has not been one of chance, of fortunate mutations, of survival of the fittest. Those species which showed the greatest adaptability, perfected themselves in their own form and eventually attained such a stability, such a suitability for their environment, that they reached a dead-end street in evolution. They finally perished when their environment was suddenly changed by world-wide climatic variations, such as the recurring glacial epochs, by variations in world bodies of land and water, or by inimical forces of other forms of life, varying in size from bacteria to saber-toothed tigers. Man, on the other hand, never became perfectly adapted. His evolution progressed intermittently but always consistently, not by chance but rather as though guided by the plan of some super-intelligence, some power greater than the simple laws of chance, mutation, and survival of the fittest. Man's physical development was achieved many thousand years ago, his intelligence developed rapidly, and was probably about as high among the ancient Egyptians, Chinese, and Greeks, as it is today. The present great scientific advances are chiefly the snowballing effect of utilizing rapidly accumulating stores of knowledge, rather than because we are now brighter than the Egyptians.

But the development of man's spiritual or moral nature has been slower, and is still racially in its early stages. It is true that through the centuries there has been a gradually increasing number who have thought primarily in spiritual or moral terms. It is true also that today there is more evidence of this spark of morality, but nevertheless many show a tendency to revert to the egocentric, amoral, physical creature of their prehistoric ancestry.

Now what has all this to do with human re-

Presidential address before the Ramsey County Medical Society, Saint Paul, Minnesota, January 29, 1951.

lations? Simply this—whether we be Russians or Americans, whether we be Republicans or Fair Dealers, whether we be patients or doctors, most of us have within us the ability to judge wisely, to make sacrifices, to understand and deal fairly with our fellows. And when nations—or politicians—or doctors violently disagree, it is probably due to one of three factors:

1. Lack of sufficient information and knowledge, and an intolerant refusal to learn more about the view of the opposition.
2. Egocentric or selfish reluctance to go part way to meet the other fellow.
3. The existence of relatively small, but vicious and amoral groups of individuals whose greed and ruthlessness stamps them as those whose evolution has not proceeded beyond the stage of the prehistoric man.

The solution of this situation, which is essentially a problem in human relations, is as simple and as frustrating at the international level as it is within our own nation, as it is between medical factions or between you and your patient.

At the county medical society level, we have tried, and I feel with considerable success, to improve human relations. We have done this in several ways:

1. By information and education—through a program of published advertising and radio talks; by making doctors available through our speaker's bureau for various public addresses on medical subjects; by improving relations with the press, the Saint Paul Association, the Community Chest, the Red Cross, and other civic organizations; and by trying to make every individual doctor a sort of ambassador of good will.
2. By trying to make good medical service readily available through the Emergency Medical Service organization.
3. By forming a Grievance Committee which has been able to adjust amicably many misunderstandings as to charges and services, as well as to crack down on a few cases of greed, selfishness, or intolerance on the part of physicians or patients.

Among our own membership we have a few problems. We have the case of the man who wishes full privileges in all the hospitals to do all types of work, even though he be inadequately trained and equipped to do so. A responsible medical society cannot permit such a man to place the health and lives of the public in jeopardy, in order to further his hunger for prestige or dollars. Then we have the super-trained specialist who may fail to appreciate the hard work, personality, and special abilities necessary for the man who is on the firing line in general practice. Many of us like to gripe about the hard work and poor pay from which we suffer in the particular field of medical practice we have chosen. But we forget that we were all reasonably free to choose whatever branch of medicine we wished, if we were willing to work for it, and that in complaining we are actually criticizing ourselves only, either for our lack of foresight in selecting our field, or for our indolence in training for it.

And this brings up another problem which is whispered in cloak rooms but never brought into public meetings—the age old matter of fee splitting. I do not propose to enter into this in detail at this time. I realize that special circumstances frequently affect various situations, and that it is impossible to cover all ramifications of so complex a subject with generalities. However, to use hypothetical illustrations, if I make a night call to catheterize a patient with acute prostatic obstruction and then refer him to a urologist for a transurethral resection, I do not expect to charge a fee in the operating room for turning on the hose to irrigate his bladder. I prefer to make a living in my own field, rather than as assistant water boy to a cystocope. And, if an obstetrician refers to me a case of cholelithiasis, he does not expect to charge a fee for standing at the operating table counting gallstones. He prefers to make a living as an obstetrician rather than as an assistant gallstone auditor. And certainly I think most of us will agree that when a specialist by any means, however devious, seeks to increase his referred work by purchasing it, or when any referring doctor, by any means, however devious, seeks to sell his patients to the highest bidder, these men are bartering in human suffering and have no place in an honorable medical society.

For all these various problems, it is the duty of the Ramsey County Medical Society to seek proper solutions. This is a democratic group where each man has an equal voice and equal opportunity for leadership. And we are fortunate here in having the excellent co-operation of the

Saint Paul Academy of General Practice, the Saint Paul Surgical Society, the Saint Paul Society of Internal Medicine, and other specialty groups, all seeking to improve ethical and scientific standards. And through these organizations, through our various committees, from the floor of these meetings, ample opportunity and channels are provided for discussing and correcting complaints, without resorting to ineffectual letters or cloak room oratory.

The Ramsey County Medical Society is your society. It is a good society because it recognizes its weaknesses and tries to correct them. It is my deep conviction that the physicians in this community as a whole, are outstanding in their professional relations, professional conscience, and professional ability. This is a recognized fact, not only locally, but by many individuals elsewhere in the nation, who are in a position to know. And, at this time, I wish to thank you men, and our various excellent committees, who by your co-operation and help have made this a year of progress. It has been a pleasure as well as an honor to work with you.

But, as stated in the beginning, in this period of world crisis, we cannot think of local matters only. We are more than Ramsey County physicians—we are American citizens. It is as American citizens that we have carried on the fight against socialized medicine. This has been a fight, not to preserve our incomes, but to preserve the personal health and economic integrity of the United States. It has been a fight against the same forces I have previously mentioned, against ignorance, selfishness, and ruthless greed. Senator McClellan of Arkansas has called those in Washington who sponsor state medicine, "Political racketeers in human misery." Dr. E. L. Henderson, President of the American Medical Association, has said, "The violent and vulgar attacks being made on the medical profession by those who would like to see it socialized, are direct evidence that the doctors of America have driven their message home." Those who cannot rally truth to their side usually resort to epithets. This is true in the case of certain labor agitators, of certain Congressional demagogues, and particularly of Oscar Ewing of the Federal Security Agency, even as it is true of Stalin, Mao Tse Tung, and their sycophants.

But, as American citizens, we must do far more than try to protect our own profession from socialization. Abraham Lincoln said, "If the United States is ever destroyed, it will be destroyed from within." That is the thing we must fear, that is the thing we do fear, whether we realize it or not. The inept fumblings with international diplomacy, the vacillating discordancies in formulating world-wide policies during the postwar years, and the present hysterical flutterings in Washington at our present dilemma, can be laid right on the doorstep of the American people, of you and me. The American voter has been influenced by greed, prejudice, intrenched privilege, laziness, rather than by national welfare—and 60 per cent of them have not bothered to vote at all.

Naturally, no one of us knows many of the answers but, certainly, this group of doctors knows the difference between right and wrong, between altruistic and egocentric objectives. It is possible, as Du Nouy suggests, that the human race is still at a primitive evolutionary stage in its development of spiritual and moral standards. It is even possible, as he suggests, that those elements representing the reversion to the ruthless viciousness of prehistoric man, may temporarily carry with them the great amorphous majority, and drive altruism and spiritual leadership into hiding. But, if we believe that the evolution of man is a progressive process, directed by a super-intelligence, we must believe in the ultimate resurgence of man's moral consciousness and spiritual strength.

Governor Langlie of the State of Washington, in a stirring appeal at the recent convention of the American College of Surgeons, called upon the doctors to step forward to their rightful place as leaders in the community. He said we fail to recognize our power and ability, individually and collectively, to influence a large number of people. The cheap politicians in our country and the dictators elsewhere, recognize it—that is why they try to destroy the medical profession by propaganda or concentration camps.

We physicians have a proud heritage. By education, by daily experience in human weakness and strength, by the necessity of dealing in human relations, by the fact that we studied medicine in the first place, we should be and we are singularly equipped to take a place of leadership,

(Continued on Page 217)

FERTILITY IN CRYPTORCHIDS

CHARLES E. REA, M.D.
Saint Paul, Minnesota

RECENTLY, a patient, twenty-five years old, upon whom I had performed orchiopexies fifteen years ago for bilateral abdominally retained testes, came to my office. Although he had been married four years, his wife had never become pregnant. The patient was concerned about his apparent sterility. Examination revealed the testes to be in the scrotum, but they were about one-third normal size. The secondary sexual characteristics were normal. A biopsy was taken of the right testicle; it showed no spermatozoa, an atrophic epithelium and a greatly increased interstitial stroma. The patient was told that it was unlikely that he would have children of his own and that he and his wife should plan to adopt children.

Because of this case, it was decided to check patients with bilateral undescended testes, who had had orchiopexies at least ten years before, and who were married, to determine their fertility.

Eight patients who had been operated upon at least ten years before for bilateral undescended testes, and who were married, were available for study. Their ages varied from twenty to twenty-five years. There were four patients with bilateral abdominally retained testes, two with bilateral inguinal testes and two in whom one testis was abdominally retained and the other inguinally retained. In six cases, it was mentioned that the scrotum was not developed at the time of operation. Wangensteen's modification of the Keetley-Torek operation was performed in all cases.

All these patients had been married for periods of from six months to five years. In no instance had the wife become pregnant. All these patients stated they were potent. The testes in each instance were in the scrotum, but none was normal in size. The testes were estimated to be one-third to one-half the normal size. Four of the patients submitted to testicular biopsy. The testes had atrophic germinal epithelium, and no spermatozoa were seen in any of the sections. It is interesting that three of the eight patients had consulted their home doctor about their sterility. Examination of the vaginal fluid after intercourse had failed to show spermatozoa in one case; and in another, the home physician reported that he could find no spermatozoa in the seminal fluid.

It is disturbing that all these treated cryptorchids are apparently sterile. On the contrary, Odionne and Simmons, McCollum, and others, have reported instances of fertility in cryptorchids treated by orchiopexy. However, these patients should be reviewed critically as to the time of examination after operation and also as to whether some of these cases may have been pseudocryptorchids.

According to the literature, spermatozoa have never been found in sections of the untreated cryptorchid testes. The sperm counts in treated or untreated cryptorchids never approach the normal, and if the undescended testes are operated upon after puberty and are small, they never attain normal size.

The experience of Sir Astley Cooper should be mentioned. A young medical student with bilateral undescended testes once consulted him about his condition. When Cooper told him he was like a castrate, the student committed suicide. At autopsy, it is stated that spermatozoa were present in both testes. If this is true, it would be a decidedly unusual finding; more likely, Sir Astley was dealing with a case of pseudocryptorchidism in which fertility was retained and not a case of true anatomically retained undescended testes.

There is no question but that placing the undescended testis in the scrotum allows the gonad to develop to varying degrees. The experimental evidence on this point has often been questioned because *normal* testes have been used experimentally: the gonads have been brought from the scrotum to the inguinal region or abdomen and then replaced in the scrotum after degeneration has occurred. The testes have had the normal potentialities all the time. However, Wangensteen has reported the case of a boy, twenty years old,

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From the Department of Surgery, Medical School, University of Minnesota, Minneapolis, Minnesota.

Presented before the Minnesota Surgical Society, Saint Paul, Minnesota, November 17, 1950.

who had bilateral undescended testes upon whom an orchiopexy was done on both sides. Biopsies were taken at the stages of orchiopexy and at the autopsy twenty months after the final orchiopexy when the boy was accidentally killed. There was evidence of improvement in the germinal epithelium.

On reviewing the literature, one finds extreme differences of opinion: that the patient with undescended testes is always sterile, or that such patients may be fertile. One wonders whether the authors are stating opinions or impressions as facts. Many writers do not distinguish between pseudocryptorchidism and true undescended testes. Pseudocryptorchids commonly have spontaneous descent of the testes with or without hormone therapy. Also these patients are usually fertile. The testes of pseudocryptorchids develop into normal size. On the contrary, in my experience, a true anatomically retained testis never spontaneously descends, and hormone therapy is of little or no value in treating this condition. The farther the testis has descended, the easier it is to do an orchiopexy and the size of the testis determines what can be expected of it. In an older patient, with a small unilateral undescended testis, such testis is better removed as far as function or a cosmetic result is concerned. In bilateral undescended testes, the saving of the testes must be considered for the development of secondary sex characteristics. These characteristics seem to develop equally as well in either the treated or untreated cryptorchid, depending on the development of the testes.

Summary

Eight bilateral cryptorchids were studied as to their fertility. Orchiopexies had been performed at least ten years previously. It was discouraging that clinically at least all these patients were sterile and four of the patients who submitted to testicular biopsy had an atrophic germinal epithelium.

There is confusion in the literature as to fertility of cryptorchids because most authors do not differentiate between pseudocryptorchids and true undescended testes.

In our experience it would seem that the fertility of patients with true undescended testes is more potential than real.

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HUMAN RELATIONS — INTERNATIONAL AND LOCAL

(Continued from Page 215)

not merely as doctors, but as American citizens. We must not waste our efforts in petty bickerings or destroy our influence in self-centered practices. We have, perhaps, been a bit too apologetic at times in discussing our profession with opposing groups. In the first part of this century, the doctor was a respected leader in his community. Let us live up to this heritage—let us be proud of our profession, and let us rededicate ourselves in these critical times to our duties as Americans. For only through proper leadership can the United States be strong militarily, intellectually, and spiritually, and, perhaps, in the strength and spirit of America lies the hope of the future. And for our personal consideration as doctors and as Americans, let me close with a familiar quotation from Abraham Lincoln, "I am not bound to win but I am bound to be true, I am not bound to succeed but I am bound to live up to what light I have."

MINNESOTA REPORTS HEART DISEASE

D. S. FLEMING, M.D., M.P.H.
Minneapolis, Minnesota
and
BERNARD WOLCYN, PH.D.
Saint Paul, Minnesota

IT is well known that heart disease in all its various forms has long been the leading cause of death in Minnesota. During 1949, deaths attributed to heart disease alone totaled 9,379—approximately one-third of all deaths in the state. Deaths from heart disease are greatly in excess of deaths from the next highest cause—cancer—which numbered 4,407 in Minnesota in 1949.

Ever since 1914, heart disease has kept its place as the leading cause of death in Minnesota. Through the intervening years, the number of deaths attributed to various forms of heart disease has shown a precipitous rise, increasing 480 per cent during the past forty years. Figure 1 shows the year-by-year increase in deaths from heart disease occurring in Minnesota as well as those registered by residence within the state. As in the case of cancer and other chronic diseases, the rise in number of deaths attributed to heart disease in recent years is due in part to two main causes—the aging of our population and the improvement in medical diagnosis.

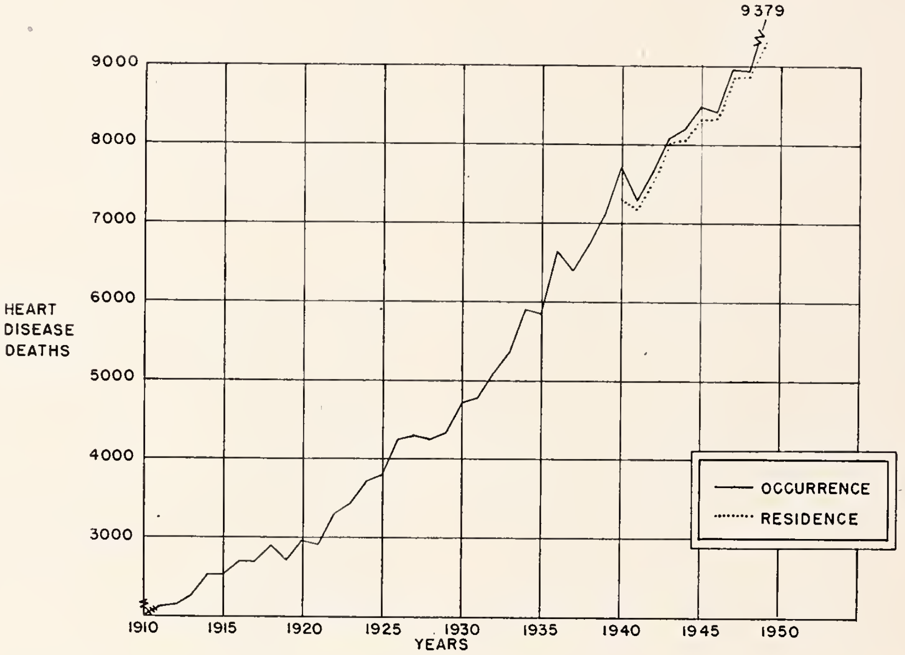

Fig. 1. Deaths from heart disease for Minnesota by occurrence and residence.

Comparing the death rate from heart disease in Minnesota (as shown by figures from the State Department of Health) with that for the nation as a whole, we find that the Minnesota rate has remained consistently lower than the rate for the nation. In 1910, Minnesota's death rate per 100,000 population was 93.2. By 1948 the rate was 315.0 per 100,000, the peak having been reached with a rate of 323.5 in 1945. This in comparison to the 480 per cent increase in numbers of deaths is a 340 per cent increase in death rate. The national figure climbed from 158.9 in 1910 to 322.7 in 1948. The wide gap between the two sets of statistics that was evident during the early years of reporting is now being slowly closed to a point at which the death rate from heart disease in Minnesota at present almost coincides with that of the whole nation. Figure 2 shows this gradual narrowing. In Figure 3 the

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Dr. Fleming is Chief of the Section of Preventable Diseases, Minnesota Department of Health, and Dr. Wolcyn is Public Health Consultant, Division of Cancer Control and Heart Disease, Minnesota Department of Health.

death rate from heart disease is shown in relation to the total death rate in Minnesota.

The latter during the period between 1910 and 1950 fluctuated yearly within narrow limits, revealing a slow but gradual trend downward.

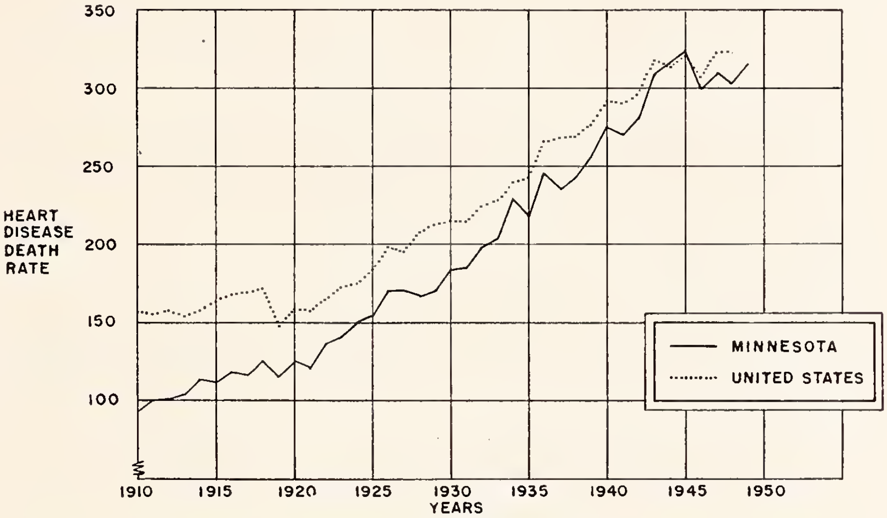

Fig. 2. Heart disease death rate per 100,000 for Minnesota and United States.

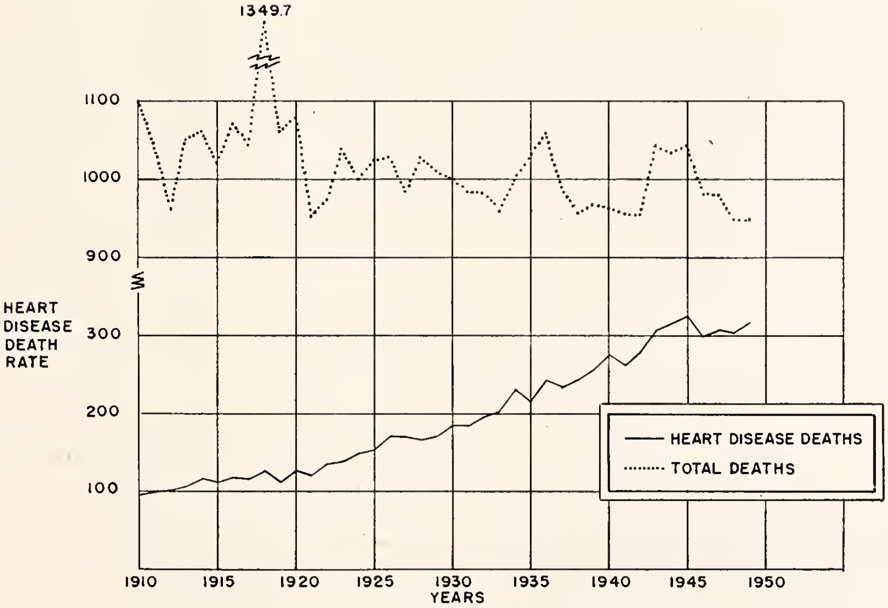

Fig. 3. Heart disease death rate in comparison to total death rate per 100,000 for Minnesota.

Heart disease death rate figures, on the other hand, show a distinct rise over the same number of years. While total death rates are dropping, heart disease death rates are on the increase. Heart disease as a cause of death in Minnesota is now taking about 225 more lives per 100,000 population than in 1910.

Figure 4 depicts the changes apparent during the 1941 to 1949 years, inclusive, in the six groups that make up the general classification of heart disease. These groupings, along with the percentage of all deaths reported for each group in Minnesota from 1943 to 1947, inclusive, are shown in Table I.

TABLE I. PERCENTAGE OF DEATHS FROM VARIOUS HEART CONDITIONS OCCURRING IN MINNESOTA DURING THE YEARS 1943 TO 1947 INCLUSIVE

Disease	Percentage of Deaths by Classification of Total Heart Disease Deaths
Pericarditis	0.1
Acute endocarditis (except rheumatic)	0.4
Chronic affections of the valves and endocardium	10.0
Diseases of the myocardium	38.1
Diseases of the coronary arteries and angina pectoris	43.2
Other diseases of the heart	8.2

Table I and Figure 3 show that coronary disease and angina pectoris take more lives than any other condition in the general classification of heart disease, with myocardial disease ranking second. Both of these groupings show a steady uphill climb, with coronary disease and angina pectoris making the greatest rise. The other four groupings maintained an even pace over the period considered in Table I, with endocarditis and pericarditis occupying minor roles in the total heart disease picture.

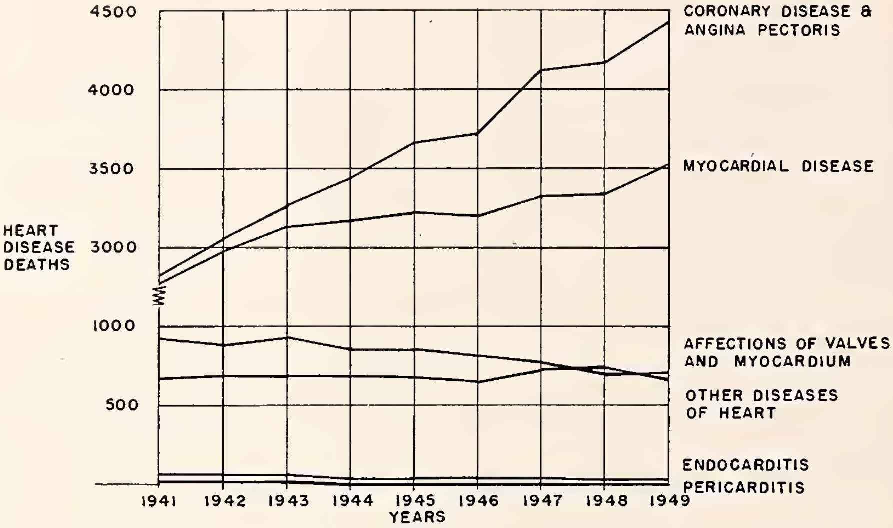

Fig. 4. Deaths from heart diseases for Minnesota by classification.

Summary

The number of deaths from heart disease, the leading cause of deaths in Minnesota, has increased 4.8 times since 1910. The heart disease death rate per 100,000 population has increased 3.4 times in the same period of time.

Heart disease now causes one-third of all deaths occurring in Minnesota.

Diseases of the coronary arteries, angina pectoris, and diseases of the myocardium lead as causes of death in the general category of heart disease.

THE FUTURE OF THE VETERANS ADMINISTRATION MEDICAL PROGRAM

The precipitate resignation of Dr. Paul B. Magnuson as chief medical director of the Department of Medicine and Surgery in the Veterans Administration has occasioned grave concern among all who are interested in the medical care of the veteran, particularly as he has stated in a letter to all doctors in the Department of Medicine and Surgery, that "there was too much interference in the running of hospitals and the authority for running hospitals."

This is a serious indictment. The issues involved can be appreciated only against the background of progress that has characterized the medical program of the Veterans Administration in recent years.

In the Spring of 1945 in Frankfort, Germany, the commanding general of the United States Ground Forces convened with the chief surgeon of the European Theater of Operations and his chief consultant to discuss the future medical care of veterans of the United States Army. It was May, the war in Europe was over and although Japan was still to be conquered, the future seemed full of hope and idealism. Under these propitious circumstances a complete reorganization of the Veterans Administration medical program was envisioned. To replace the archaic and bureaucratic system that had made veterans' hospitals places to be shunned, they planned a decentralized organization not unlike the Army's medical services in the European Theater where the care of the patient took precedence over all other considerations and where hospitals vied with each other for excellence. To make such a program an enduring one, they conceived the idea of linking it to those most stable of human institutions, the universities.

The ensuing years saw much of this concept come to fruition. Congress passed Public Law 293, which freed professional personnel from the restrictions of Civil Service Regulations. The universities supported the plan and took under their guidance the "affiliated hospitals." The names of Omar Bradley, Paul R. Hawley, Paul B. Magnuson, Elliott C. Cutler and Edward Cushing were identified with what Dr. Carroll, elsewhere in this issue of the *Journal,* has called "a transformation without parallel in the medical history of this country." Distinguished men in all branches of medicine were

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THE CHRONIC ALCOHOLIC AND ANTABUSE THERAPY

JACK V. WALLINGA, M.D.
Saint Paul, Minnesota

FROM an historical standpoint, it is only recently that alcoholism has come to be considered as a medical problem. For the past twenty centuries drunkenness has usually been thought of as a moral issue and punishable by the same legal action as other crimes against society. That such a punitive attitude has resulted in no improvement in the problem of alcoholism is only too apparent. In passing, it is interesting to recall that as recently as 1918 the Congress of the United States attempted to legislate the problem of alcohol out of existence. In reality the past twenty-five years have, for the first time, seen beginning attempts to attack the problem of alcoholism in the same scientific spirit that has obtained in the conquest of other diseases. From the medical standpoint it follows that the abnormal use of alcohol must be considered as a disease process if progress is to be made in its solution. One of the most recent attempts to treat alcoholism by means of a chemical agent is presented here.

The problem that is created by alcoholism, both socially and economically, is large. It is estimated that there are 750,000 people in this country who are confirmed, chronic alcoholics. There are almost 3,000,000 other excessive drinkers who border on chronic alcoholism.[11] The economic problem attributable to alcoholism in a single year is estimated at $432 million in potential wage losses; crime $188 million; accidents $89 million; hospital and medical care $31 million; and $25 million for the maintenance of drunken persons in local jails—a total of $765 million—and this still does not take into account the costs that cannot be figured in dollars: broken homes, deteriorated personalities, the damage done to good minds which otherwise would be capable of contributing positively to society.[6]

What is this disease for which the cost is so high? While the state of present knowledge permits no dogmatic statements with regard to etiology, it is felt that one of the major contributing factors is in the emotional area. Alcohol seems to serve a need similar to that of many neurotic symptoms in that it is effective in shielding from painful realities and unpleasant internal tensions. Menninger speaks of the phenomenon of self-destruction which occurs by irresistible addiction to repeated, excessive drinking of alcohol. We know of persons who, on their way to attempt suicide, have stopped for a drink and after a while, and several drinks, have forgotten for the time their original goal. Psychologically, alcohol addiction may be considered a form of self-destruction used to avert a greater self-destruction stemming from inner conflicts of which the person is only vaguely aware if at all. Such conflicts may take many forms, such as deep feelings of guilt, need for punishment, uncontrollable feelings of hostility, et cetera. Its further quality is that in a practical sense the self-destruction is accomplished in spite of and at the same time by means of the very device used by the sufferer to relieve his pain and avert this feared destruction.[15]

Alcoholics present a paradox in dynamics—the strong and largely unconscious wish to fail or relapse on the one hand, and the often desperate conscious desire to overcome the illness on the other. Freud has proposed the theory of the "death instinct," which may be one approach; Bergler emphasizes the role of super-ego tension and the driving compulsion for self-punishment. From studies concerned with the personality make-up of the alcoholic, a fairly characteristic pattern has evolved in which we see the alcoholic as a maladjusted and emotional immature individual. He frequently gives a history of an excessive dependence on his mother and strong mixed feelings in that relationship. He craves independence and earnestly desires to be free from that maternal bondage which so frustrates him, but he is utterly unable to break away from the pattern of the mother's domineering influence. This set of mixed feelings, the alternating love and hate for the mother, accounts for much of

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This work was done in the Department of Psychiatry, University of Minnesota Hospitals, with the cooperation of the Department of Internal Medicine.

A part of this material appeared in the *Bulletin of the University of Minnesota Hospitals and Minnesota Medical Foundation* for Nov. 24, 1950.

the hidden frustration and the otherwise unrecognized mental and emotional conflict which characterizes these individuals.[18]

The alcoholic personality demands quick relief from his troubles. He is generally nervous, restless, and always craving something. He dislikes following a routine and does not want to be tied down to a day-by-day job. He longs to be a "big shot" but dislikes competition and is greatly influenced by his associates. He is markedly passive in nature—dictators are never alcoholics. Usually the alcoholic has a kind disposition and is cruel or sadistic only when extremely frustrated, but he does like to be humored and coddled. He often shows a serious lack of adequate goals in the reality of living. The alcoholic is not a good marital risk. He seems selfish in his love life, he is frequently sexually maladjusted, and because of his strong dependent personality trends it is difficult for him to assume responsibility and meet the obligations of adult behavior. The problem drinker is notorious for the intensity of his infantile needs and the demands he makes on those around him. The flight into alcoholic narcosis may represent an attempt to recapture the infantile feeling of omnipotence.[16]

Investigations of the early life histories of chronic alcoholics have suggested that many were more or less serious problems at "weaning time." The majority were not weaned until the second year, sometimes well into the second year. In babies we see that milk is in a way the baby's nervous or emotional anesthetic. That is, it does for the perturbed or nervously tense infant exactly what alcohol does for the frustrated and nervously tense adult.

In the individual history of an alcoholic it is difficult to say when socially and relatively harmless drinking was superseded by a more malignant and compulsive type of drinking. This is one of the insidious dangers of alcohol for unstable individuals.

Another aspect of this problem which must be kept in mind is the pharmacological factor. Nutritional deficiencies may be a cause as well as a result of chronic alcoholism. Neuro-endocrine disturbances are probably especially significant, and recent work suggests that many alcoholics are of generally asthenic habitus and deficient in gonadal and adrenocortical hormones.[19]

Of the numerous varieties of medical treatment offered to the chronic alcoholic in the past, none has given satisfactory results. Institutionalization has been tried frequently, sometimes for periods as long as a year, but this has not produced, with any frequency, the desired abstinence. Psychotherapy has not been too successful except in highly selected cases. From the point of view of treating large numbers of alcoholics, Alcoholics Anonymous has been the most effective tool yet devised. Here again there exists an absolute criterion for such therapy in that the Alcoholics Anonymous program means that the alcoholic has insight, that is, comes to Alcoholics Anonymous voluntarily with the admission that he is a drunkard. The aversion, or conditioned reflex, treatment based on Pavlov's work has had some success. First apomorphine, and recently emetine, has been the basic drug in this treatment, which consists of the patient being hospitalized and conditioned against alcohol by the simultaneous administration of one of these vomit-producing drugs and liquor. Using this treatment in carefully selected cases, Lemere[14] and others report 66 per cent successful abstinence for six months to two years after treatment and 46 per cent abstinence in cases followed four years or more.

In 1914, Koelsch reported that workers who handled cyanamide experienced flushing of the face, headache, accelerated and deepened respiration and pulse rate, and a feeling of giddiness on taking even a small amount of alcohol.[13] It has also been known for several years that the fungus *coprinus atramentarius,* though innocuous to man when taken alone, gives rise to similar unpleasant symptoms when alcohol is consumed.[3] In rare cases of idiosyncrasy to alcohol similar symptoms appear without any other drug being taken.

Antabuse (tetraethylthiurium disulfide) was discovered by Doctors Hald and Jacobsen in Denmark while they were working to develop a drug effective against certain intestinal worms.[7] As an incidental observation they noticed that a person taking this drug, upon ingesting alcohol in any form, always developed a group of symptoms which made drinking difficult. The drug by itself is nontoxic. The lethal dose in animals is reported to be 3 grams per kilo of body weight.[9] In clinical trials single doses of up to 6 grams and daily doses of 0.25 to 0.60 grams for several months were given without producing any subjective or objective symptoms apart from those following the ingestion of alcohol.

The clinical application of Antabuse in the treatment of alcohol addiction was first made by Jacobsen and Martensen-Larsen in Denmark. They found that when a person has taken Antabuse previously, the intake of alcohol results in the following chain of symptoms. After five to fifteen minutes the person has a feeling of heat in the face. A few minutes later an intense vasodilitation is observed in the face and neck, sometimes extending over the upper part of the chest and arms, making the whole area purple-red. Vasodilitation of the sclerae is also characteristic. The pulse rate is increased to 120 to 140. The blood pressure is unaltered or slightly depressed, and respiration is increased. Sometimes nausea begins thirty to sixty minutes after the ingestion of the alcohol. In such cases the intense flushing disappears and is replaced by facial pallor, and there is a considerable fall in systolic and diastolic blood pressure. Copious vomiting may occur. Large doses of alcohol may result in dizziness, occasionally unconsciousness and convulsions, and deaths have been reported. These symptoms are usually accompanied by an intense feeling of discomfort to the patient, who has a pulsating headache, palpitation, dyspnea, and extreme restlessness. Frequently the patient complains of a constricted feeling in the neck, "as though the collar were too tight," also a feeling of "premature hangover" which they find most disagreeable. Altogether, the discomfort is so intense that, once experienced, it discourages the large majority of patients from further attempts to use alcohol as long as they are taking the drug. These unpleasant effects usually last an hour or two, occasionally up to five hours, following which the person is quite fatigued and likely to sleep for a few hours. Then he awakens feeling fairly well.

Hypersensitivity to alcohol generally begins three to four hours after the ingestion of a single dose of Antabuse and is fully developed during the next twenty-four hours; on some clinical trials, however, this latent period was as long as forty-eight hours.

Antabuse is eliminated slowly in man, largely in the feces in unaltered form. Because of this slow elimination the effect of a single dose lasts up to eight days.

In prescribing Antabuse it is important to remember that alcohol in any form will start the usual chain of symptoms. Alcohol in such disguised forms as cough syrups and brandy sauces on puddings has produced symptoms; and even the liberal use of vinegar which had begun to ferment on a boiled cabbage, ham, and cole slaw dinner has, in at least one instance, made a person receiving Antabuse ill. Two cases have been reported where Antabuse patients have been noticeably uncomfortable after alcohol backrubs.[4]

Occasional mild effects are observed in patients receiving Antabuse. Most commonly complained of is lassitude and tiredness for the first few months. This may be handled adequately by giving the Antabuse in the evening when the sedative action is desirable. Mild allergic cutaneous reactions have been reported, as have dizziness, interference with taste, impotence, and mild gastrointestinal disturbances.[1] All of these symptoms respond to reduction in dosage. A possible explanation of these side effects is offered in a report by Edwards[2] that Antabuse alone partially inhibits cellular respiration.

The actual mechanism of the alcohol-Antabuse reaction is not yet known, but it is believed to be due to an increase in the acetaldehyde in the blood. This may be formed by some unknown reaction of the drug on the enzymes oxidizing alcohol in the organism.[8] Perhaps after treatment with Antabuse the normal elimination of alcohol is partly or completely blocked, and under the influence of the alcohol dehydrogenase a higher proportion of alcohol than normal is oxidized to acetaldehyde. Another possibility is that alcohol hydrogenase is highly activated by Antabuse. A significantly increased acetaldehyde concentration in the blood has repeatedly been demonstrated in persons treated with Antabuse who ingest alcohol.[7] Also the sequence of symptoms characteristic of the Antabuse-alcohol reaction can be duplicated by intravenous injection of acetaldehyde.

The contraindications to Antabuse therapy appear to be relative, and are usually psychiatric rather than organic. The original investigators treated all persons with alcoholism who consulted them, and they found no absolute contraindications.[10] However, the treatment is not without danger, and deaths have been reported.[5,12] Two deaths have been reported in Europe in patients treated with Antabuse who were suffering from diabetes mellitus, but other diabetics have been treated without complications.[17] Patients with cardiac damage present a greater risk, and extreme caution must be used in such cases. Bennett reports a case of mild heart disease with minimal electrocardiogram damage who had an electrocardiogram during an Antabuse test reaction which showed an alarming increase in coronary insufficiency.[1]

Asthma, nephritis, goiter, and epilepsy also indicate a cautious approach to Antabuse therapy. Moriarty[17] believes that the important psychiatric contraindications are drug addiction in the patient, as he would be likely to resort to more of the habituating drug when alcohol is removed as an escape; and the presence of psychosis, in which the patient might use Antabuse as a means of suicide or otherwise misuse the drug. A patient lacking insight, thus unable to accept the need of the treatment, would also be a poor candidate for Antabuse therapy.

Ten persons who have received treatment for alcoholism with Antabuse at University of Minnesota Hospitals in the past fourteen months are reported here. These patients volunteered for the treatment with the knowledge that this was its first use here and that it was still an experimental drug. Alcohol had constituted a problem for each of them for periods of from seven to thirty years. The criteria for selection were that the person be sincerely interested in receiving help, to the extent of agreeing to stay in the hospital for three weeks while treatment was begun; that they were of average intelligence, and that there were some positive factors in their previous personalities and work adjustments.

On admission to the hospital the procedure which was to be followed and the degree to which their co-operation was necessary was explained to them. Complete history and physical examination were done, as well as laboratory studies including electrocardiogram, urinalysis, complete blood count, serum bilirubin, thymol turbidity, cephalin cholesterol flocculation, and bromsulfalien retention at forty-five minutes after injecton of 5 mg. per kilogram of body weight. Continuous daily twenty-four-hour urine specimens for coproporphyrin determinations were collected throughout each patient's hospital stay; however, the porphrin results were inconclusive concerning the effect of the Antabuse-alcohol reaction on the urinary coproporphyrins. After a drying-out period of four or five days the patient was given an initial test of alcohol, usually 200 c.c. of 95 per cent ethyl alcohol in grape juice over a three-hour period, to obtain an idea of the individual's tolerance. Then approximately five days later, Antabuse was started, 1 gram the first day, and 0.5 grams daily thereafter as the maintenance dose. On the sixth day of Antabuse therapy the patient was given alcohol in order that he might have first-hand experience with the symptoms of the alcohol-Antabuse combination. An initial amount of 10 c.c. of 95 per cent ethyl alcohol was given orally. Pulse and blood pressure were checked at five minute intervals during the reaction. A second 10 c.c. quantity of alcohol was given approximately fifteen minutes later; and if the reaction was not then marked, a third 10 c.c. drink was offered to the patient, this about thirty minutes after the initial drink. This quantity was usually sufficient to demonstrate convincingly to the patient the severe symptoms which follow the ingestion of alcohol while taking Antabuse. The reaction which followed was the characteristic series of symptoms which was described earlier. In one of our female patients, 8 c.c. of 95 per cent alcohol was sufficient; in another case it was necessary to give 45 c.c. in order that the patient experience a reaction of the desired intensity. At the time of the test reaction it was impressed on the patient that such symptoms would follow the intake of alcohol as long as the patient continued taking Antabuse. He was also told that his sensitivity to alcohol would increase as he continued to take the drug and that any drinking would result in these symptoms and that heavy drinking might well endanger life. It was felt that some of the patients, most often those who had received the aversion treatment in the past, had some suspicion that the alcohol might have been tampered with, so they were encouraged to try a drink if they so desired, after leaving the hospital, but they were warned that if they did so, they should drink slowly and with extreme caution. At least two of our group did test themselves in this manner after leaving the hospital.

In two instances the initial Antabuse-alcohol test reaction was not severe enough so that the patients thought it would deter them from further drinking. The test was repeated in two or three days with 40 c.c. of 95 per cent alcohol given more rapidly, and both patients were then sufficiently impressed. It was interesting to observe in the two unsuccessful first trials here, and with a majority of the other patients in the group, that they expressed marked disappointment that they were not made even more ill when they took alcohol, almost as if they desired the drug to have a punishing quality.

Two of the patients in this group complained of mild gastrointestinal discomfort during the first week on Antabuse. In three other cases marked weakness, dizziness, tremor, incoordination, and restlessness were complained of during the first two or three weeks after leaving the hospital. There were no objective findings, however, and it was felt that these complaints most probably reflected the individuals' anxiety and apprehension about the loss of support that alcohol had previously offered them.

The Antabuse-alcohol reaction took place in all but one case without disturbing or unforeseen effects. In that case, a hypentensive patient complained of moderately severe anginal pain coincident with a blood pressure drop from 220/140 to 120/60 when alcohol was administered. No after-effects were observed, however.

After a satisfactory Antabuse reaction in the hospital, the patient was discharged and thereafter followed and supplied with more Antabuse in the Psychiatric Outpatient Clinic of University Hospitals. It was found desirable to reduce the daily dose of Antabuse to 0.125 grams in two cases and to 0.25 grams in another instance because of persisting uncomfortable side effects of dizziness and sleepiness.

Two of the subjects have been re-evaluated concerning liver function status three months after starting Antabuse and two others after six months on the drug. This data has been compared with the initial liver function tests, and no evidence of liver damage has been found.

All of these patients volunteered for Antabuse treatment, although in several of the cases pressure was brought to bear by the family or employer, and in each case the person had recognized before he or she came for treatment that alcohol constituted a severe problem for him and one in which he needed assistance. Individual psychotherapy was offered but not encouraged in order that the effectiveness of Antabuse alone might be better evaluated. The status and mechanism of Antabuse was discussed frankly with each patient during his hospitalization, and the theme was stressed that the effectiveness of the treatment depended on his continuing to take the drug regularly after leaving the hospital.

At this time two of the group are known to have discontinued the use of Antabuse. Significantly, perhaps, these two were receiving the most pressure from family or employers to undergo treatment. One was in the process of commitment to a state hospital for alcoholics. This was postponed when arrangements were made by his family for him to receive Antabuse, but commitment was subsequently carried through by his family when he was returned from another state in a chronic alcoholic condition five weeks after discharge from the hospital. The other failure was a nurse who was threatened with the loss of her job if she did not receive treatment, and she discontinued Antabuse a month after discharge from the hospital. Another patient stopped taking Antabuse and entered an alcoholic episode of a month's duration four months after leaving the hospital, but he subsequently returned voluntarily and has continued to do well on Antabuse since then. Still another of the group has discontinued the drug, but has not returned to drinking. The others have been getting along well and successfully staying away from alcohol for periods ranging from six to fourteen months.

It is apparent that the taking of the daily Antabuse dosage is voluntary and that, conversely, the patient can discontinue it at will. For this reason Antabuse therapy has no value in the patient who does not have insight into his alcoholic problem, thus who does not regard it as a real problem in his life, but who may be motivated to give lip-service to the treatment because of impending legal trouble, threat of divorce, et cetera. As an adjunct to therapy, however, it is our impression that Antabuse treatment has real value in the type of patient who recognizes that he is drinking abnormally but who does not seem able to stop drinking on a voluntary basis without outside help. In this patient, often the successful professional or business man or woman, Antabuse serves as a useful method of extending out into a three or four day future the earnest and sincere wish to stop drinking, coupled with the adequate recognition that if the drinking pattern is not interrupted, disaster or destruction of some type will follow. Several of the patients in this series have made the obvious remark that it is relatively easy to make the decision to take a pill on getting up in the morning when resolutions are high and then to relax in the knowledge that they cannot drink for at least three or four days. These patients tended to adopt the philosophy of thus keeping three or four days "ahead of the game."

Most patients made no attempt to avoid contact with liquor and attended social functions where cocktails and other drinks were served. One patient consistently maintained his usual late afternoon contacts with a hard-drinking group of friends of long standing who were accustomed to meet in a local bar. He felt that his friends were privately envious of his success at abstinence as judged by their frequent attempts at humor about his being "on the wagon."

It is recognized that one cannot draw valid conclusions after one year of follow-up in a series this small. However, it appears clear that as long as a person maintains his Antabuse dosage, it is a physiological impossibility for him to drink. In this regard it was our definite impression that the Antabuse-alcohol combination, as seen in the therapeutic trials in the hospital with small amounts of alcohol, contains a possible threat to life itself. If, for example, an Antabuse patient were to take rapidly a relatively large amount of alcohol (4 to 6 ounces of 100-proof whiskey), it seems likely that death might result from circulatory collapse unless the patient were immediately taken to a hospital and given active supportive therapy by a physician who was aware of the cause of the prostration. No patient should be given Antabuse without permitting him to experience a therapeutic trial with alcohol under hospital conditions. Only in this way can he adequately realize, intellectually and emotionally, how profound the reaction is. Toward the same end, each patient taking Antabuse should carry with him an identification card which states he is taking Antabuse, together with the name of the physician who is treating him. Antabuse patients should also be instructed about ingesting materials which they might not know contained alcohol, such as cough medicines, elixirs, et cetera.

Finally, it is important to keep in mind that a psychotherapeutic program which aims at permitting the patient to deal with underlying conflictual material should be an integral part of the total therapy of which Antabuse may be a valuable adjunct.

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THE ASSASSINATION AND GUNSHOT WOUND OF PRESIDENT JAMES A. GARFIELD

OWEN W. PARKER, M.D.
Duluth, Minnesota

ON July 2, 1881, at 9.30 a.m., James Abram Garfield, twentieth President of the United States, while walking arm in arm with his Secretary of State, James G. Blaine, in the depot of the Baltimore & Potomac Railroad at Washington, D. C., was shot by Charles Guiteau.

It was another great shock to the Nation comparable to the assassination of President Lincoln. I recall the news of the event as distinctly as though it were yesterday. It reached out to our farm home on the wide sweeping mystic prairies of Iowa where "the lark calls, the wind sweeps, the prairie grasses quiver and sing a wistful roving song of hoof and wheel and sail"—not by radio or telegraph or train, but by the slow turning of loaded wagon wheels along the winding deep-rutted prairie trail of the time. Our neighbor had gone to town and brought back the news that President Garfield was shot. Young as I was, I sensed a tragedy to our country. My vivid impression of the event gave me an interest in Garfield which has always remained. I read all the news I could get of his long illness, his death and last rites with burial at Lakeview Cemetery in Cleveland, Ohio.

I read biographies of him and in later years visited his tomb and the spot where he fell in the old Baltimore & Potomac Railroad Station marked by a star on the floor. It is a remarkable fact that when the Nation gave expression to its sorrow over the death of Lincoln, Garfield should have been so notably the voice which spoke that sorrow—it was an emergency oration before an excited, sorrowful, turbulent and angry audience in New York City. The oration ended with those memorable words, "God Reigns and the Government at Washington Still Lives." He quieted the wild passions of the crowd, and it became strangely silent. Fate is ever unknown. Garfield, himself, became President and fell as did Lincoln by the hand of an assassin. "God Reigns and the Government at Washington Still Lives" was still true.

My first remembrance of a Presidential campaign was that of Garfield and Hancock in 1880. Both were generals in the War Between the States. James Abram Garfield had risen from the ranks and was a hero at Chickamauga, and Winfield Scott Hancock, the Superb, was a West Point graduate and a hero at Gettysburg. Both were popular and gallant and able men. The election went to Garfield by a fairly close margin and he became the twentieth President.

His nomination at Chicago was spectacular and dramatic. General Ulysses S. Grant had returned from a trip around the world and had received greater honors by the countries of the world than any living person of the time. He returned home a triumphant hero of the world. He was supported for a third term as President by the so-called stalwarts of the Republican Party, headed by that great orator, the imperious, powerful and indomitable Senator Roscoe Conkling of New York. Conkling was a handsome man of wonderful physique and courage—a massive, finely shaped head with hyperion curls. Blaine and Conkling did not get along well, and Blaine in a speech of ridicule spoke of Conkling as "He of the Turkey Gobbler Strut," which Conkling, it is said, never forgave.

When Conkling made his great speech nominating General Grant, it is said someone cried, "Where does he hail from?" Conkling replied in the famous words, "You ask me where he hails from? This shall my answer be—he hails from Appomatox and its famous Apple Tree." At the opening of the convention General Grant had the largest number of delegates but not enough for nomination.

The great James G. Blaine of Maine and Senator John Sherman of Ohio, brother of General William Tecumseh Sherman, and former Governor William Windom of our own State of Minnesota were also candidates. Garfield attended the convention as a delegate, supporting Senator John Sherman of Ohio, and made a great nominating speech for Sherman, which was wildly acclaimed and struck a strong note in the convention.

After long balloting with the Grant men

standing firm, but not gaining, the convention suddenly turned to Garfield and rapidly nominated him. It was a great personal triumph for Garfield.

Garfield's ancestors on his father's side came to Massachusetts in the early Colonial days and were of Welsh descent. His mother's ancestors were French Hugenots and also came in Colonial days to American shores. His father and mother settled in the Western Reserve near Cleveland. There Garfield was born in 1831.

In fighting a forest fire his father, a strong, powerful man, became exhausted and probably developed pneumonia and died, when Garfield was just a young boy. Left with his mother and brother and sister, he had to make his own way in the world. His mother lived to see him enter the White House as President.

They were greatly devoted to each other. Garfield worked hard as a boy. At one time he was employed on the Canal. He graduated from Williams College, Williamstown, Massachusetts, taught school, at times preached sermons in the churches. He entered the war between the states, was rapidly promoted, becoming a general. He was elected to Congress during the war—an office he held for many years—and then was elected to the United States Senate from Ohio, just before his nomination for the President of the United States.

There was much bitterness, fighting and feuding in his party during his first few months of the Presidency, which had caused him much worry and difficulty, and to add to his troubles, Mrs. Garfield became sick with typhoid fever just after they entered the White House. She was recovering at Long Beach at the oceanside in New Jersey.

It was the purpose of the President, as soon as the pressing cares and anxieties of his great office could be put aside, to join his wife by the seaside and to enjoy with her a brief respite from the burdens and distractions which weighed him down, so with the coming of July first and the adjournment of Congress, he proposed to rest with his family for a brief season by the sea, after which he would visit Williams College to make arrangements for the admission of his two sons to his alma mater.

On the morning of July 2, 1881, he proceeded to carry out his plans. Several members of the Cabinet, headed by the Secretary of State, Mr. Blaine, were to accompany him to Long Beach. A few ladies, personal friends of the President's family, were in the company, and as the hour of departure drew near, they gathered at the depot of the Baltimore & Potomac Railroad to await the train. The President and Secretary Blaine were somewhat later than the rest. On the way to the depot the President, always buoyant and hopeful, was more than usually joyous and grateful that the relations between himself and the members of the Cabinet were so harmonious, and that the Administration was a unit. Amongst his Cabinet, besides Secretary Blaine, were Robert Todd Lincoln, son of President Abraham Lincoln, Samuel Kirkwood, war governor of Iowa, and our own former governor of Minnesota, William Windom.

When the carriage arrived at the station at 9:30 a.m., the President and Mr. Blaine entered the Ladies' Waiting Room, which they passed through arm in arm as mentioned above. A moment afterwards, as they were passing through the door into the main room, two pistol shots were heard. Mr. Blaine saw a man running and started toward him, but turned almost immediately and saw that the President had fallen. He had received a pistol shot wound from a British Bulldog revolver, which carried a 44/100 central fire cartridge, powder 20 grains, weight of bullet 200 grains. He was fired upon at a distance of eight feet from behind. Dr. Townsend, Health Officer of the District, who was the first doctor to come to the scene, is reported to have said, "I found the President, when I arrived at the Baltimore & Potomac depot, about five minutes after the shooting occurred, in a vomiting and fainting condition. From the pulse at the wrist I thought he was dying. I had the head lowered and administered aromatic spirits of ammonia and brandy to revive him. This had the desired effect and the President regained consciousness—was asked where he felt the most pain, to which he replied, 'In the right leg and foot.' I asked him the character of his pains and he said it was a prickling sensation. He rallied considerably and I proceeded to examine his wounds. I found that the bullet had entered his back two and one-half inches to the right of the vertebrae. I introduced my finger into the bullet wound. Some hemorrhage followed. After examination of the wound the President looked up and asked me what I thought of it. I answered I did not consider it serious.

He continued, 'I thank you, Doctor, but I'm a dead man.' "

Dr. W. W. Bliss, surgeon in charge of President Garfield throughout his illness, wrote a complete history of the President's case immediately following his death. Excerpts from this detailed history are here presented:

> The great interest which has been manifested by the medical public in the surgical history of the case of President Garfield, and my close and direct connection with it as surgeon in charge, from the time I was summoned until his death, imposes upon me the obligation of giving, even at this early date, a general summary of the salient points connected with its diagnosis, treatment, and pathology.
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> Immediately after the shooting of President Garfield, on the morning of July 2, I was summoned by the Secretary of War to take charge of the case. I was conducted to an upper room in the building, where I found the President lying upon a mattress, in a semiprone position, on the left side. He presented the appearance of perfect collapse, the lines of expression were lost, there was extreme pallor, sighing respiration (about eight or ten per minute); pulse exceedingly small, feeble, and frequent, and ranging about 120. Large beads of perspiration stood upon his hands and forearms.
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> The President complained of a sense of weight and numbness, and subsequently of a tingling sensation and pain in the lower extremities. With a view of exploring the wound to ascertain the course of the ball and the organs involved in its passage, I introduced a Nelaton probe which took a direction downward and forward, on a line which would represent a point of exit four inches to the right, and nearly directly opposite to the umbilicus. The point of entrance of the ball, which was oval and sharply cut, was on the right side, four inches from the median line of the spine, and on a line with the eleventh rib. A slight discharge of blood was oozing from this orifice, and had soiled the clothing. I passed the probe in the direction previously indicated, through the tenth intercostal space, for a distance of three and one-half inches from the surface of the body, to what appeared to be a cavity, and I was unable to detect any foreign substance beyond the rib to indicate the presence of fragments of bone or the missile. In attempting to withdraw the probe it became engaged between the fractured fragments and the end of the rib, and could not be liberated until pressure was made upon the sternal end of the rib so as to slightly elevate its fractured extremity.
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> I then passed the little finger of my left hand to its full extent into the wound, which developed the character and extent of the fracture of the rib, and was only able to reach a point on a line with the inner surface of the rib, where it came in contact with what appeared to be lacerated tissue or comparatively firm coagula, probably the latter. After withdrawing my finger I made an exploration with a long, flexible silver probe, which I suitably curved before entering, and gently passed it downward and forward, and downward and backward in several directions, with a view of indicating the course of the ball, if it had been deflected by contact with the rib, and meeting with resistance from soft parts. I desisted and excluded the probability of deflection, being inclined to the opinion that the ball had entered the liver, which, if true, would not warrant further exploration in that direction.
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> The President repeatedly requested that he be taken to the White House, and after further consultation and a full understanding of the manner and detail of his transfer, his speedy removal was agreed upon.
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> On his arrival at the White House by ambulance, a careful examination was made of his condition. The pulse continued feeble, frequent, and extremely compressible; the respiration was slow and sighing; extremities and surface cold, with occasional vomiting and profuse perspiration over the entire body; voice husky, with constant complaint of severe pains in the inferior extremities. He was placed upon his right side, so as to make the wound dependent, to facilitate drainage, and keep the viscera in contact with the injured parietes, with a view of preventing further hemorrhage and looking to the possible adhesion of the injured parts to the peritoneum. Water was given in small quantities, often repeated. This was necessitated by the extreme thirst from which the patient suffered.
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> A hypodermic injection of one-eighth of a grain of morphine and one-eightieth grain of atropia was administered to control the pain in the extremities, and as a more permanent stimulant to assist reaction. This was about 10 a.m., July 2.
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> There was but little change in the condition of the patient, either in temperature, respiration, or pulse, until about eleven o'clock, when it was determined to repeat the morphine in the dose of one-sixth of a grain, the atropia being omitted. This soon had the effect of modifying the pain and discomfort, and the respiration became more frequent and easy. The pulse responded but little to the stimulants. Nausea and vomiting continued at intervals of thirty minutes during the entire day and until 7 p.m., when it became less frequent, with less retching—in fact, being simply a regurgitation of the fluids of the stomach. This condition continued at longer intervals until six o'clock the following morning.
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> At 10 p.m. the pulse was 158, temperature 96.5, respiration 35, which was the most critical period attending the collapse. At 11:20 p.m. the evidences of reaction began to manifest themselves.
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> When the pulse had diminished to 120, the temperature had risen to 98 degrees F., and the respiration was 18.
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> The patient slept at short intervals, generally arousing with an effort at regurgitation of the contents of the stomach, but otherwise expressed a feeling of comfort and gave evidences of rest. During the night he seemed to be refreshed and was comparatively free from pain. There was no time after my first visit, up to this

period, that the patient was not perfectly rational, and often made brief, persistent inquiries as to the character of the wound and his condition.

At the evening consultation, July 2 (7 p.m.), the opinion was expressed by some of the medical gentlemen invited to the case, that internal hemorrhage had taken place, and that he would not survive the night, and expressed these views to the council. The symptoms of profound collapse were so grave that Surgeon-General Wales was induced to express the opinion that the President was dying.

All the physicians visited the White House at 8 a.m., July 3, for the morning consultation, agreeably to a previous understanding that such should be the case if the President survived the night. At this consultation, Surgeon-General Barnes and Surgeon Woodward, U.S.A., Dr. Reyburn and Dr. N. S. Lincoln visited the bedside of the patient with me, with a view of making the necessary examinations, dressing the wound, and of reporting results to the other members of the council. The patient was found with a pulse of 115; the temperature was nearly normal, as was the respiration. He was cheerful, gave evidence of being rested, and made definite inquiries regarding his condition and prospects. The use of morphine hypodermically, in doses of sufficient quantities to control the pain in the extremities, was advised, and it was agreed that the patient should continue to occupy the position on his right side as before directed, so far as was possible; and that the wound should be exposed only when the dressings became disarranged; and that their character should not be changed.

The primary reaction reached its highest point of temperature, pulse, and respiration, at 2 p.m. on Sunday, July 3. Slight tympanites was detected, but no pain on pressure, or any marked rigidity of the abdominal walls. These were the only symptoms which pointed to the existence of peritonitis throughout the whole course of the case, and the spontaneous movement of the bowels, already noted, was an additional evidence that the peritoneum was not involved.

At 10:45 p.m. the pulse had gradually increased in frequency until it reached 120. The temperature remained at 100 degrees, and respiration at 20. At this time Dr. D. Hayes Agnew of Philadelphia and Dr. Frank H. Hamilton of New York were summoned to visit the patient in consultation. Dr. Agnew arrived about four o'clock the following morning, July 4, and Dr. Hamilton at 6 a.m. They were presented to the President formally at the consultation, 8:15 a.m., at which time the pulse was 104, temperature 99.4 degrees, and respiration 19. He had passed a comparatively comfortable night, awakening every twenty or thirty minutes, taking water or liquid nourishment in small quantities each time and dropping quickly to rest. The nausea had quite subsided, and the pain and soreness of the lower extremities was measurably controlled by the administration of morphia, which was continued in quarter-grain doses each evening, administered hypodermically.

A careful review of the case from the time I first saw the President was given to these gentlemen, with the request that they, with the data before them, examine the case thoroughly, as though it were their own, and freely express their views of the character and gravity of the injury and the course of treatment of the case up to that time. I also gave them a detailed account of the explorations made in the wound and the unsettled convictions as then held as to the course of the missile and the organs involved in the injury. They individually examined the wound with great care. These examinations consisted in the introduction, in different directions, of probes, flexible bougies, in order, if possible, to determine the course of the ball. With the evidences developed by this personal examination, together with the complete history of the shooting of the President, and the progress of the symptoms for the first forty-seven hours, they proceeded to discuss the possible course of the ball and organs involved, viz., whether it passed directly forward into or through the liver, or was deflected backward at a right angle so as to involve the spinal column, or downward behind the peritoneum toward the pelvic cavity. Carefully weighing all the evidences, the more prominent symptoms upon which the diagnosis was based are presented in the following manner: the relative position of the assassin to the President at the time of shooting, the direction of the ball through the tissues, so far as safe exploration could determine, gradual subsidence or modification of pain and hyperaesthesia of the feet; the repeated unsuccessful efforts to pass a probe or flexible instrument more than one-half inch in any direction, beyond the fractured rib, except in a direction downward, a little forward and anterior to the twelfth rib, a distance of about two inches. The fact also was considered that explorations had twice been made with the finger—one by myself soon after I reached the injured President, and subsequently by Surgeon-General Wales of the Navy, on the occasion of the consultation on the evening of July 2; and in each instance it was found impossible to successfully explore by that means beyond the inner border of the fractured rib so as to determine, with accuracy, the course of the ball, or even the condition of the tissues indicated by the end of the finger. Nor did they underestimate the significance of the profound shock, nor the unusual period of collapse which followed and seemed to point to extensive lesion of important viscera. However, that the kidneys, intestine, and peritoneum were not immediately involved, was made patent by the unrestrained passage of normal urine at proper intervals, the spontaneous movement from the bowels of natural faeces, the frequent discharge of flatus, and the absence of other symptoms of peritonitis. With all these facts before them it was impossible to determine positively the course taken by the ball. The indications pointed to a downward course of the ball, into the pelvic cavity. Upon careful consideration of the foregoing facts, and of the opinions expressed by the distinguished counsel, we were inclined to recede from the opinion at first adopted regarding the supposed passage of the ball through the liver. The propriety of making extensive incisions and dissections so as to explore the fractured ribs and remove as much as might be necessary to reveal the true course of the ball, was duly considered. But the opinion was maintained that favorable progress of the President thus far did not warrant any interference, and, further, such an operation would seriously complicate the case and diminish the prospects of recovery. The facts revealed by the autopsy cofirms the wisdom of the course pursued. With this in view all the surgeons concurred.

The case progressed, with slight fluctuations, up to July 23, when a rigor occurred at 7 p.m. followed by a pulse of 124, respiration 26, and temperature 104 degrees F. Two days previous to this a pus-sac was observed in the common integument extending down below the twelfth rib toward the erector spinae muscle, and underneath the latissimus dorsi and was carefully evacuated by gentle pressure into the original opening on the occasion of each dressing. We did not feel satisfied that this superficial and limited collection of pus, which was so readily evacuated, was the principal cause of the aggravation of the symptoms present. However, a free incision was made into the pus sac, which afforded a more direct and dependent channel to the fractured rib, from which a small fragment of bone was removed.

After the operation the improvement was not as prompt as we had reason to expect, and on the 26th of July the opening between the fractured ends of the eleventh rib was enlarged, and a small detached portion was removed. This facilitated the discharge of pus, and, as a result, a more uniform condition of the symptoms was maintained until about August 6, when slight febrile exacerbations were observed, which continued to be manifest until the operation was made to afford a more free passage of pus from the supposed track of the ball. The necessity of the operation was more plainly developed by passing a flexible catheter through the opening previously made, which readily coursed toward the crest of the ilium, a distance of about seven inches. This cavity was evacuated twice daily, by passing through the catheter, previously inserted in the track, an aqueous solution of permanganate of potash from a small hand-fountain, slightly elevated, the water and pus returning and escaping at the opening externally. The indications for making a point of exit in the dependent portion of the pus-sac were urgent, and on August 8 the operation was performed by extending the incision previously made, downward and forward through the skin, subcutaneous fascia, external and internal oblique muscles, to a sinus or pus-channel. The exposed muscles, to a sinus or pus-channel, contained a considerable number of minute spiculae of bone. Upon carrying a long, curved director through the opening between the fractured rib downward to the point of incision, there was a deeper channel which had not been exposed by the operation thus far, and the incision was carried through the transversalis muscle and transversalis fascia, opening into the deeper track and exposing the end of the director. A catheter was then passed into the portion of the track below the incision, a distance of three and one-half inches, and in a direction near the anterior superior spinous process of the ilium. The President was etherized during this operation.

On August 18 a slight tumefaction of the right parotid gland was noticeable, unaccompanied by pain or tenderness on pressure, until the suppurative period was established, when mental disturbance, vomiting, restlessness, and jactitation supervened; nor was there any increase of temperature, local or systemic, to indicate the probability of its metastatic origin. The parotitis presented many of the characteristics of an ordinary carbuncle, and was unaccompanied by any other abscesses in the adjoining tissue. During the progress of the parotitis facial paralysis occurred, and continued with slight improvement, until the time of his death. When the climax of suppuration was reached, a free discharge of laudable pus followed, with a rapid abatement of the more urgent symptoms, and after the separation of the slough (which was limited in extent) reparation was rapid and complete throughout the entire suppurating surface, as well as in the several incisions which had been previously made to liberate the pus.

The subject of the removal of the President to a more salubrious locality had been discussed for several days, and was urgently presented at the consultation on August 25. The majority of the council, with myself, considered that his removal at this time would be attended with very great hazard. The hope, however, was expressed that the President might be sustained until suppuration was established in the parotid, and the constitutional disturbances incident thereto had subsided, when it would be possible to remove him.

Finally, it was decided by the majority of the surgeons that the President should be removed to the seashore.

His transfer from the Executive Mansion to the cars was made with the least possible disturbance, without accident, and with perfect satisfaction and comfort to the patient. During the journey his pulse and temperature were taken from time to time, and frequent examinations made to determine the effect of the motion at different rates of speed. The minimum of unpleasant motion seemed to be secured at a rate of about sixty miles an hour. During the last hour of his journey he showed symptoms of fatigue, which would have prevented a longer journey, had such been required to reach his destination. His pulse increased, the countenance became slightly anxious, and the temperature measurably exalted at the period to which I allude.

He was transferred from the cars to the Elberon cottage at 10 p.m. without accident. His pulse at 10 p.m. reached 124, temperature 101.6 degrees. The morning of September 7 his pulse had fallen to 106, temperature 98.4 degrees, respiration 18. The President expressed great satisfaction that he had arrived at the seashore, and notwithstanding the heat of the two succeeding days, it made but little impression upon the distinguished patient, the pulse, temperature, and respiration continuing the same until September 15, when his pulse slightly increased in the evening, so that it occasionally reached 120 during the night.

After his arrival at Elberon there was an extension of the bronchial catarrh into the ramifications of the bronchi of the right lung, and limited broncho-pneumonia followed.

I should mention here a fact well known, that the President was so much pleased with his improvement, that he expressed that the number of his professional attendants should be reduced. Accordingly, Drs. Barnes, Woodward and Reyburn retired from the case, leaving Elberon the morning of September 8.

September 17, at 11:00 a.m. a severe rigor occurred of half an hour's duration, followed by a sharp rise of temperature. At 12 a.m. the pulse was 120, temperature 102 F., and respiration 24. The mental disturbances were more noticeable during the febrile rise, but the stomach was able to retain the nourishment and stimulants, which were given at regular intervals in the form of milk punch. This chill was accompanied by severe pain over the anterior mediastinum, and the President said to me that it was similar to what he understood as angina pectoris. It is evident that this pain, which occurred on several occasions at intervals of six to twelve hours prior to his death, was occasioned by first, a rupture of the aneurismal sac, and the progressive dissection, at irregular intervals, of the blood into the surrounding tissue, until finally it burst into the peritoneum.

A febrile rise was very marked by twelve noon of the 17th, attended with great anxiety of countenance, the temperature falling to 98 degrees F., the lowest point of normal range, the pulse being, however, steadily at 102, and rather feeble. While there was, in my judgment, an absence of typical metastatic abscesses to produce this symptom, there was a profound expression of gravity in his condition that was not commensurate with the systematic disturbance, and which prevented my absence even for a few moments at a time. I made the remark to Dr. Agnew: "I am in constant fear of some danger impending. We may have a terrible outburst, possibly in the shape of a cardiac thrombus," I said to members of the family: "There is a gravity in this case that portends serious trouble."

At 6:00 p.m. of the 18th there was another chill, accompanied with pain as before. The febrile rise continued until midnight, the pulse varying from 112 to 130.

At 8:00 a.m., September 19, the pulse was 106 and feeble; temperature 108.8, and all the conditions unfavorable. In half an hour afterward there was still another chill, followed by febrile rise and sweating, and also with pain as before. During the periods of chill and fever he was more or less unconscious. He passed all day in comparative comfort, and at 8:30 in the evening his pulse was 108, respiration 20 and temperature evidently a little lower than normal.

At 10:10 p.m. I was summoned hastily to the bedside, and found the President in an unconscious and dying condition, pulseless at the wrist, with extreme pallor, the eyes opened and turned upward, and respiration eight per minuate, and gasping. Placing my finger upon the carotid, I could not recognize pulsation; applying my ear over the heart, I detected an indistinct flutter, which continued until 10:35, when he expired. The brave and heroic sufferer, the nation's patient, for whom all had labored so cheerfully and unceasingly, had passed away.

Autopsy revealed the track of the ball presenting a course of entrance downward and forward to the point of impingement upon the eleventh rib, and being then deflected to the left at almost a right angle, passing behind the kidney, perforating the intervertebral cartilage and first lumbar vertebrae anterior and to the left of the kidney, and finding its lodgment below left extremity of the pancreas, wounding in its track the splenic artery.

A mass of black, coagulated blood covered and concealed the spleen and the left margin of the greater omentum. On raising the omentum it was found that this blood-mass extended through the left lumbar and iliac regions and dipped down into the pelvis, in which there was some clotted blood and rather more than a pint of bloody fluid.

The blood coagula having been turned out and collected, measured very nearly a pint. It was now evident that secondary hemorrhage had been the immediate cause of death, but the point from which the blood had escaped was not at once apparent.

The adhesions between the liver and the transverse colon proved to bound an abscess-cavity between the under-surface of the liver, the transverse colon, and the transverse mesocolon, which involved the gall bladder, and extended to about the same distance on each side of it, measuring six inches transversely and four inches from before backward. This abscess did not involve any portion of the substance of the liver except the surface with which it was in contact, and no communication could be detected between it and any part of the wound.

The liver was larger than normal, weighing eighty-four ounces; its substance was firm, but of a pale yellowish color on its surface and throughout the interior of the organ, from fatty degeneration. No evidence that it had been penetrated by the bullet could be found, nor were there any abscesses or infarctions in any part of its tissue.

The spleen was connected to the diaphragm by firm, probably old, peritoneal adhesions. There were several rather deep congenital fissures in its margins, giving it a lobulated appearance. It was abnormally large, weighing eighteen ounces; of a very dark lake-red color both on the surface and on section. Its parenchyma was soft and flabby, but contained no abscesses or infarctions.

Behind the right kidney, after the removal of that organ from the body, the dilated track of the bullet was dissected into. It was found that from the point at which it had fractured the right eleventh rib (three and one-half inches to the right of the vertebral spines) the missile had gone to the left, obliquely forward, passing through the body of the first lumbar vertebra and lodging in the adipose connective tissue immediately below the lower border of the pancreas, about two and one-half inches to the left of the spinal column, and behind the peritoneum. It had become completely encysted.

The track of the bullet between the point at which it had fractured the eleventh rib and that at which it entered the first lumbar vertebra was considerably dilated, and the pus had burrowed downward through the adipose tissue behind the right kidney, and thence had found its way between the peritoneum and the right iliac fascia, making a descending channel which extended almost to the groin. The adipose tissue behind the kidney in the vicinity of this descending channel was much thickened, and condensed by inflammation. In the channel, which was found almost free from pus, lay the flexible catheter introduced into the wound at the commencement of the autopsy; its extremity was found doubled upon itself, immediately beneath the peritoneum, reposing upon the iliac fascia, where the channel was dilated into a pouch of considerable size. This long descending channel, now clearly seen to have been caused by the burrowing of pus from the wound, was supposed during life to have been the track of the bullet.

On the examination and the dissection made, it was found that the fatal hemorrhage proceeded from a rent, nearly four-tenths of an inch long, in the main trunk of the splenic artery, two and one-half inches to the left of the coeliac axis. This rent must have occurred at least several days before death, since the everted edges in the slit in the vessel were united by firm adhesions to the surrounding connective tissue.

The surgeons assisting at the autopsy were unanimously of the opinion that, on reviewing the history of the case in connection with the autopsy, it is quite evident that the different suppurating surfaces, and especially the fractured spongy tissue of the vertebra, furnish a sufficient explanation of the septic conditions which existed during life.

The autopsy report was signed by Drs. D. W. Bliss, J. K. Barnes, J. J. Woodward, Robert Reyburn and D. S. Lamb. The names of Drs. F. H. Hamilton, D. Hayes Agnew, and A. H. Smith, were not appended to it. It was, however, submitted to them, and they gave their assent to the other portions of the report.

The body of President Garfield was taken back to the Capitol where it lay in state in the rotunda for two days and then was taken to Cleveland, Ohio, for burial in the Lakeview Cemetery. Among the great numbers in attendance at the cemetery was Major William McKinley, who later became President McKinley, and who, himself as President, met a similar fate at the hands of an assassin.

The assassin, Charles Guiteau, was captured before he could escape from the scene and placed in jail. Following Garfield's death, he was tried by the court in Washington, D. C., and found guilty, and later executed by hanging.

Many prominent alienists, or psychiatrists, were called at that time to testify as there seems to have been some question as to whether or not Guiteau had a mental illness. He was a strange, ne'er-do-well, fanatical sort of character, fairly well educated, had practiced law, I believe in Chicago, and engaged in various other occupations, even the ministry. He had conceived the idea of being made a consul to France, and had been in Washington for some time, amongst the hoard of office seekers, and, having been disappointed, followed the President at various times, even to church, with intent to assassinate him.

The late Dr. Alan McLane Hamilton, alienist of New York City, and distantly related to Alexander Hamilton, was at the trial of Charles Guiteau and gave an excellent description of it in his book.

The doctors who cared for President Garfield, one feels, in reading the history, were men of character and high standing, and great professional ability. Dr. Hayes Agnew was, perhaps, the most outstanding of the group. He was a great surgeon of the Listerian period, and was professor of surgery at the University of Pennsylvania.

Dr. Frank Hamilton was a great orthopedic and plastic surgeon of New York City.

When I first started treating fractures on the Iron Range of Northern Minnesota, we sometimes used the Hamilton splint.

We must recall that their difficulties in treating the gunshot wound of President Garfield were much greater than ours would be at the present day. It was before the days of aseptic surgery, antiseptic or Listerian surgery was practiced. There was no x-ray to assist in diagnosis. There was no penicillin nor sulfa drugs, no antibiotics, no antitoxins, blood transfusions nor intravenous solutions. Today, we would likely not probe for a bullet or even insert the finger for examination. No sterile surgical gloves were in use until Professor Halsted of Johns Hopkins used them in the early Nineties.

In 1900, when I interned at St. Luke's Hospital, Saint Paul, Minnesota, rubber gloves were in constant use by Drs. Wheaton and McLaren, and all the younger surgeons, John T. Rogers, Warren Dennis, Judd Goodrich, Harry Ritchie, Arthur Gillette, Knox Bacon, Alexander Colvin, and other younger men who operated at St. Luke's hospital. Yet there were excellent older surgeons over the country who did not use gloves, and operated bare-handed, with arms exposed to the elbows, for a number of years after 1900.

It would seem that one must conclude that sepsis entered largely into the cause of the death of President Garfield, even though a sudden hemorrhage seemed the immediate cause.

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SPONTANEOUS PNEUMOTHORAX COMPLICATING BRONCHIAL ASTHMA DUE TO WOOD DUST

J. S. BLUMENTHAL, M.D., F.A.C.P.
Minneapolis, Minnesota

IN spite of the increased intra-alveolar pressure present in asthma, an associated spontaneous pneumothorax has been infrequently reported. This is the more remarkable because this entity is not an uncommon event in apparently normal chests, even with the individual at rest. Thus Crenshaw[4] reports on eighty-six patients between the ages of a few hours and seventy-two years in whom spontaneous pneumothorax occurred in the absence of tuberculosis or trauma, while severe exertion was a contributing factor in only a few. This rarity of reported spontaneous pneumothorax in asthma may be because the increased pressure in asthma comes in inspiration in alveoli that have become gradually dilated. It may also be because the diagnosis is missed because of the difficulty in detecting the new physical findings and symptoms in the presence of already marked asthmatic and emphysematous signs, even though the breathing may be further embarrassed. Persistent nonexpansion of the lung is quite rare. Crenshaw[4] reports ten of eighty-six cases with persistent spontaneous pneumothorax due to labor and segmental localized emphysema with formation of bullae and blebs. At any rate, pneumothorax is frequently found at autopsy in asthmatics[7] even though it may be unsuspected clinically. The cause of pneumothorax is probably the rupture of blebs and bullae due to increased size because of tension or because of interference with the blood supply to the bleb.

Spivacke[14] reported a case of asthma with pneumothorax in an eleven-year-old child, though other pathological factors may have been involved. Faulkner and Wagner[6] report a case of fatal spontaneous pneumothorax and subcutaneous emphysema in an asthmatic. Jeffrey and Marlott[8] report on a bilateral pneumothorax in a seventeen-year-old asthmatic. Perhaps because of greater ease in diagnosis, subcutaneous emphysema associated with or without pneumothorax is more frequently noted.[2,5,11,13] The underlying cause is essentially the same except that, of course, the lung vesicles rupture under thhe visceral pleura.

The treatment of simple and single spontaneous pneumothorax is usually conservative but exploratory thoracotomy in persistent types may be indicated.

Wood[1,3,9,10,12,15] has been known to cause allergic manifestations. Kejaat, boxwood, orangewood, pine, spruces, cedar are among the woods involved, though at times the many smuts and fungi are very difficult to rule out. Skin tests may or may not be positive though clinical tests are. Treatment by desensitization is usually successful, but avoidance of the allergen is, of course, usually the method of choice.

Case Report

A carpenter, aged forty-three, was admitted to the University Hospital with symptoms of five days' duration. He had a cough, shortness of breath, pain of sudden onset in the right chest and a "sloppy" sensation in the right chest. The cough and shortness of breath had also suddenly become much more severe five days ago. There is no history of any unusual exertion, but he had had a cough with asthmatic breathing for the last nine months which was initiated and aggravated at his place of employment. His symptoms were only present after being exposed to the dust at his place of work. This dust consisted of oak, mahogany and cedar woods. No previous history of asthma could be elicited. His past and family history are not contributory.

Physical examination was negative except for chest findings. There was a flatness of the right intercostal spaces; the right supraclavicular fossa was shallow. There were decreased breath sounds and fremitus in the same area. The trachea was shifted to the left. X-ray revealed a massive pneumothorax of the right chest. The cardiac and tracheal shadow was shifted to the left indicating a tension pneumothorax. The right dome of the diaphragm was depressed. Respirations were 26, pulse 78, blood pressure 110/70, temperature 98. The eosinophile count was 15 per cent though the count had been normal on several previous occasions. Other findings were not remarkable. Intradermal skin tests were for the most part negative but the mixture of cedar, mahogany and oak dust from his place of work produced

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From the Department of Internal Medicine, Allergy Clinic, University of Minnesota.

a positive scratch test. While an atomizer inhalation of house dust was productive of no clinical symptoms, when wood dust was used the patient had definite signs of respiratory embarrassment. Because of the odor of the cedar, it was difficult to disguise the material used. Extensive questioning did not reveal any antipathy to his work, employers or surroundings. It would be difficult to escape the conclusion that the wood dust was the antigen causing the asthma. The factor of the spontaneous pneumothorax is very difficult to assess.

The patient was treated conservatively except that the air in the pneumothorax was aspirated twice in the first twenty-four hours. He made an uneventful recovery and at the last visit had no symptoms. He was advised to refrain from exposure to the antigen as the most practical form of treatment though desensitization could be considered.

Summary

A case is reported of spontaneous pneumothorax in a man suffering from asthma probably caused by wood dust.

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THE FUTURE OF THE VETERANS ADMINISTRATION MEDICAL PROGRAM

(Continued from Page 220)

happy to serve, often at considerable personal sacrifice, as advisers and consultants. The medical and nursing staffs of Veterans Administration hospitals were brought to a par with the best civilian institutions, equipment was improved, opportunities for research were created and the veteran was provided with "medical care second to none."

All this was not accomplished without a struggle. As Dr. Carroll points out, there is much that has been criticized. No system is without fault, and the inherent defect in the Department of Medicine and Surgery in the Veterans Administration is that it is subject to the restrictions, regulations and budgetary limitations that affect the entire Veterans Administration Program. Consequently, its personnel, its supplies and equipment and even its planning may be impaired by measures directed primarily toward abuses in other departments of the Veterans Administration. This defect was recognized at the outset by General Hawley. Complete rapport between him and General Omar Bradley minimized the problem, but with the departure of these men to other fields, the difficulties have slowly multiplied. Without warning, extensive reductions in personnel have been ordered, with results often deleterious to the care of patients; personnel ceilings have been established when certain hospitals were already seriously shorthanded thus permanently crippling their staffs; minimal expenditures that would permit the development of research programs have been forbidden, while millions of dollars were being spent to erect hospitals where they were not badly needed.

Recognizing these defects, Dr. Magnuson has vigorously championed the cause of a more independently administered medical program. Under his leadership, substantial progress has been made in effecting affiliations between medical schools and the Veterans Administration hospitals. He has attracted the highest type of medical personnel to the Veterans Administration, and under him the best and most modern treatment of the incapacitated veteran has been assured. His insistence that the administration of hospitals and clinics should be under the direct control of the chief medical director has received the complete and unwavering support of his board of national consultants. Any deviation from his policies undoubtedly will bring about a deterioration in the medical program of the Veterans Administration. His loss is a grievous one; his successor assumes a momentous responsibility for the future of the program.

Fortunately, the appointment of Vice Admiral Joel T. Boone as chief medical director indicates that there will be no change in policy and no acceptance of lower standards. Admiral Boone, a holder of the Distinguished Service Cross and the Congressional Medal of Honor, a naval officer of distinction and a man of the highest personal integrity, is well equipped to maintain the high ideals and high standards of medical care originally envisaged by Generals Bradley and Hawley. In his efforts he will have the wholehearted support not only of his colleagues within the Veterans Administration but of the entire medical profession.

The ultimate future of the Department of Medicine and Surgery in the Veterans Administration, however, depends upon whether or not it is granted the autonomy it needs to manage its hospitals and clinics in accordance with the best medical traditions.—*Editorial, New England Journal of Medicine,* Feb. 8, 1951.

History of Medicine In Minnesota

MEDICINE AND ITS PRACTITIONERS IN OLMSTED COUNTY PRIOR TO 1900

NORA H. GUTHREY
Rochester, Minnesota

(Continued from the February issue.)

On November 20, 1884, William J. Mayo was married to Hattie May Damon, of Rochester, the daughter of Eleazer Damon and Carolyn M. Damon. Mr. and Mrs. Damon were both of English descent and natives of Massachusetts who came to Rochester in 1856. Mr. Damon was the pioneer jeweler of the city; his first store was a small log building on what is now First Avenue, S. W.; the path that led westerly from the store to his home became Zumbro Street. He was a good citizen who furthered all measures for the welfare of city and county; the family were sustaining members of the Congregational Church. With the marriage of William J. Mayo and Hattie M. Damon there began a perfect companionship, in an always gracious home, that was to continue fifty-five years. Those who have enjoyed the hospitality of Dr. and Mrs. Mayo in their home or on their boat on the Mississippi River know well the restful order and friendly atmosphere that surrounded them. Five children were born to Dr. and Mrs. Mayo, three daughters and two sons, of whom the sons Worrall William and William Damon and one daughter Helen Phoebe died in infancy. Dr. Mayo's deep affection for his family, his pride in them and his loyalty to them were a vital influence in his life.

In his first year as a physician W. J. Mayo began his faithful reading of medical journals and his frequent trips for postgraduate study and observation, first to Chicago and New York and soon to all parts of the United States and Europe, wherever he heard of men who were doing surgical work that was new or good or courageous. There are in the files of the Mayo Clinic the little notebooks he kept on those trips. The entries usually begin with city, date and hospital, the operating surgeon, his personal appearance and, sometimes, his mannerisms; the list of names is a roster of the world's great surgeons from 1883 into the early nineteen hundreds. Most of the notes are in pencil, a few in ink, occasionally made clearer by a crude sketch, and they concern preoperative care and postoperative care of patients; hospital routine, "for the Sisters"; technique of operations in all fields of surgery; and operating room equipment, including improvisations. An example is a memorandum made at the surgical clinic of Dr. W. S. Halsted, of Baltimore, in 1895, on the use of rubber gloves and rubber-soled shoes in the operating room, and of towels as aprons for quick changes at the operating table.

Even before he entered practice William J. Mayo was introduced by his father to organized medicine, at meetings of county, district and state societies; and once at a meeting of the American Medical Association, where he heard Dr. John L. Atlee, of Philadelhia, in tribute to his late great brother, Dr. Washington L. Atlee, and felt in accord with him in fraternal loyalty. As a young physician a little later Dr. Mayo occasionally attended a medical meeting in company with Dr J. B. McGaughey or Dr. Franklin Staples of Winona, for both of whom he always had affectionate and grateful regard because of their early kindly interest and encouragement; as he had for Dr. Nathaniel S. Tefft, of Plainview, who once saved him from error in a treatment that he was carrying out in youthful enthusiasm.

In 1883 he became a member of the Minnesota State Medical Society, in 1885 he helped to reorganize the Olmsted County Medical Society, in 1892 he became a member of the American Medical Association and in that year was a founder of the Southern Minnesota Medical Association. In the state group, as noted earlier, he served at various times on committees, was the first vice president in 1891, second vice president in 1892, and in 1893, the youngest man, until then, to hold the office, he was elected president. In 1899 he became a fellow of the American Surgical Association, on the proudest day of his professional life; in 1885 he had attended a meeting of the association, a young country doctor, and had thought wistfully of the glory of membership; in 1913-1914 he was the society's president. He was president of the American Medical Association in 1905-1906; the Society of Clinical Surgery, 1911-1912; American College of Surgeons, 1918-1919-1920; Congress of American Physicians and Surgeons, 1925; and the Interstate Post-graduate Medical Association of North America, 1932-1933. On his election to the presidency of the American Medical Association, Rochester honored him, his brother, who had just been elected president of the Minnesota State Medical Association, and his father, much as the city had honored Dr. W. W. Mayo in 1904, and presented Dr. W. J. Mayo with a three-handled silver loving cup on which was engraved, "Presented to Dr. W. J. Mayo by his many Rochester friends, July 24, 1905."

He early realized the importance of writing medical papers and of presenting them before scientific groups. In formal writing and formal public speaking he employed literary English concisely and effectively. Otherwise he used the vernacular and used it well. His custom in preparing a paper was to begin with an arresting sentence, follow it with text that required, except on rare occasion, not more than fifteen minutes for reading or delivery, and a cogent summary. He agreed with the old preacher who said, "Few souls are saved after the first fifteen minutes of a sermon."

At various times Dr. W. J. Mayo was a member, either health officer or secretary, of the Rochester Board of Health. From 1892 to 1900 he served on the Minnesota State Board of Health; when he resigned, in January, 1900, Governor John Lind appointed Dr. Charles H. Mayo to the vacancy.

By 1905 his list of society memberships, honorary degrees, medals and awards already was impressive, but it was only a fraction of what it was to be. In Portland, Oregon, in that year, when Dr. William L. Rodman, of Philadelphia, nominated Dr. Mayo for unanimous election as president of the American Medical Association he said, in small part, and informally: "At no one time, in no one place, has the complete list of the honors, degrees and memberships received by Dr. William J. Mayo been published, and this at his expressed wish. Not in lack of appreciation, he was deeply grateful to all who honored him, but because he felt that to make public as an authorized publication the world-wide list would savor of too much self-esteem." This was true of Dr. Mayo all his life. Honors that came to him he accepted as meant equally for his brother and the clinic as a whole.

For his service during World War I, as noted earlier, Dr. Mayo received the Distinguished Service Medal. On June 30, 1917, he received a letter from Surgeon-General William C. Gorgas of the War Department asking him to act as surgical adviser in General Gorgas' office and to select such men as he thought best in the surgical profession of the United States to act as his associates. Major Mayo accepted and on July 9, 1917, took up his duties. His first act was to secure the appointment of his brother, Dr. Charles H. Mayo, as alternate. Together they chose their associates. Throughout the war, as colonels, they served as alternating chief consultants; when one was in Washington, the other was in Rochester. Their official function was to insure and to maintain, as far as possible, the proper standard of character and professional ability of the physicians taken into the medical service of the army and to plan and carry out ways and means for their special training.

Dr. William J. Mayo began his medical and surgical practice officially on July 1, 1883; on July 1, 1928, he performed his last surgical operation. He turned quietly from the work he loved to apply himself to other professional endeavor in which he believed at sixty-seven he would be more useful. In his first years of practice he operated in every field then known. He did early and original work on cicatricial stricture of the esophagus. His first thyroidectomy, in 1890, in which Dr. C. H. Mayo was his assistant, was his last. After Dr. Charlie's surgical versatility became manifest, Dr. Will centered his attention on abdominal and pelvic surgery. His safe and simple method of overlapping repair of umbilical and postoperative abdominal hernias came into general use. His work in the field of liver, gallbladder and biliary ducts and pancreas is well known. He made enduring contributions in studies of the physiology and anatomy of the large intestine, rectosigmoid and rectum in relation to radical operations on these organs, and in surgery of the kidney, ureter and genital tract. His studies of diseases of the uterus and adnexa, with early standardization of abdominal myomectomy for the pregnant and the nonpregnant uterus, demonstrated the desirability of myomectomy over hysterectomy for the patient in the childbearing period. He is best known for his standardization of surgery of the spleen as related to operations for removal of the spleen for diseases of the blood and other conditions; for intensive studies of duodenal ulcer and gastric ulcer and for surgical procedures for their cure and prevention; and for perfecting radical operations for the curative removal of carcinoma of the stomach.

His keen intelligence and sensitive intuition made Dr. W. J. Mayo a rare judge of character and ability, an exceptional leader. He recognized opportunity and foresaw occasion; so delicately did he impart recognition and foresight that the recipients never became aware that certain new ideas on which they acted were not originally their own. Because of his seniority in the clinic he forced himself, outside the circle of family and close friends, to be impersonal, at sacrifice of the camaraderie that he would have enjoyed and that he missed. It has been said that he had too great dignity, too much reserve, that he was inflexible in his decisions. He was immovable only when there were in question professional integrity and the honorable progress of the clinic and the foundation on a basis of justice to all. In such matters of high obligation he accepted misunderstanding. His kindly tolerance was not a gift bestowed at birth, but was of gradual growth, the flowering of self-discipline and self-control.

With gradually changing economic conditions he recognized the need for change in the administration of the clinic. He saw depression coming years ahead and tried to prepare for it by preparing the members of the staff both as to mental attitude and as to financial safeguarding. His last twenty years were given largely to evolving and bringing into effect, in co-operation with able associates and advisers, basic principles for functioning of the clinic and the foundation. To this end he left his major funds, guarding carefully against suggestion of rule by the dead hand.

There remains uppermost in the memories of the many physicians who came under Dr. Will's teaching when they were green recruits, his kindness to young doctors, his understanding, his praise of all that could be praised, his few and always friendly corrections free from criticism. To a new and frightened assistant in the operating room who before an operation was reviewing the clinical data for him, he would say, "Remember, you are the architect, I am only the carpenter."

Of his compassionate understanding much is known, much cannot be told, because the telling would renew for many the pain of old sorrow and trouble through which Dr. Will sustained them or from which he rescued them. He restored courage and self-respect.

A member of the Episcopal Church, he was in active sympathy with the work of all denominations and valued the aid of the clergy in ministering to the sick. To needy and anxious patients he was doubly a life-giver, for by quietly relieving their financial worries he gave them increased chance for recovery. He used to say, "I understand and sympathize with the common man—the intelligentsia who are educated beyond their intelligence, I do not understand." And, on refusing certain high offices, "I want to be a plain, everyday doctor, holding the respect and esteem of the medical profession."

He was grateful for the recognition he received from the medical profession. He felt privileged to serve as a regent of the University of Minnsota from 1907 until his death. He had deep satisfaction in the usefulness of the clinic and in the realization of the Mayo Foundation for Medical Education and Research, which fulfills his supreme purpose of furthering better care of the sick. In his last weeks, lying where he could see the Mayo Foundation House, his former home, he had comfort in the knowledge that the house was fulfilling Mrs. Mayo's and his hope when they gave it, in August, 1938, that it would "become a meeting place where men of medicine may exchange ideas for the good of mankind."

When Dr. Mayo returned home in April, 1939, after spending the winter in Arizona, it was to undergo a clinical examination that resulted in discovery of a gastric lesion of the type to the surgical palliation or cure of which he had made major contributions. When he had looked at the x-ray picture, he spoke simply of the diagnosis and gave his own prognosis. His death occurred on July 28, 1939. Two days before he died he said, accepting the end with the calm spirit with which he had accepted all inevitable and unchangeable things, ". . . I have no regret except in the personal sorrow my going will bring. . . . It has been given to me more than to most men to realize my dreams." He had loved the truth and sought to know it.

In 1949 there survived Dr. William James Mayo, all of Rochester, Mrs. Mayo; two daughters, Carrie Louise Mayo, wife of Dr. Donald C. Balfour, and Phoebe Gertrude Mayo, wife of Dr. Waltman Walters; and nine grandchildren and fourteen great-grandchildren. Dr. D. C. Balfour, with the Mayo Clinic since 1907, is professor of surgery, the Mayo Foundation, Graduate School, University of Minnesota, and director (beginning October, 1947, emeritus director) of the Mayo Foundation. Dr. Waltman Walters, with the Mayo Clinic since 1920, is head of a section on surgery in the clinic and is professor of surgery, the Mayo Foundation. During World War II he served as captain in the Medical Corps of the United States Navy, in naval hospitals in the United States and at Aiea Heights, Hawaii.

Charles Horace Mayo (1865-1939), sixth child and younger son of Dr. and Mrs. William Worrall Mayo, was born in Rochester, Minnesota, on July 19, 1865.

Charles H. Mayo received his preliminary education in the common schools and the high school of Rochester, his early intensive training in premedical and medical subjects under his father, and practical experience in chemistry and pharmacology in a local drugstore during vacations. In September, 1885, he matriculated for a course of three years at the Chicago Medical College (the medical department of Northwestern University), a school known for its wealth of clinical material, its fine department of clinical and research laboratories, and its distinguished faculty. Here he came under the influence of Nathan S. Davis, John H. Hollister, Frank Billings and William E. Casselberry in medicine and under Edmund Andrews, John E. Owens and Ralph N. Isham in surgery, Walter Hay in nervous and mental diseases and Oscar De Wolf in state medicine and public hygiene, and others. After graduation on March 27, 1888, he returned home to begin practice with his father and his brother. On April 6, 1888, he received his Minnesota state license No. 23 (R). In the following year he made the first of his many trips abroad and on his return took his first formal postgraduate work, at the New York Polyclinic Medical School and Hospital, for which he received an ad eundem degree. Thereafter his trips for study were annual, so that the *Rochester Post* commented: "Dr. 'C. H.' keeps up with the times. Neither he nor his brother Dr. 'W. J.' lets any new method for improvement of practice pass unheeded or unlearned."

On April 6, 1893, Charles H. Mayo was married to Edith Graham, of Rochester, a sister of Dr. Christopher Graham and one of the thirteen children of Mr. and Mrs. Joseph Graham, pioneer settlers of Olmsted County. In notes on Dr. Graham (*q.v.*) in this article is included a brief history of this unusual family. Edith Graham, a graduate of the Woman's Hospital of Chicago in 1889, was the first trained nurse in Rochester and the first instructor in nursing and anesthesia at St. Mary's Hospital. After a few months in the home of Dr. and Mrs. W. J. Mayo, while their own house was rising next door, Dr. and Mrs. C. H. moved into their Red House; in 1912 they removed to Mayowood, a few miles from town. The hospitality of their home became traditional; Dr. Mayo was an inimitable host, Mrs. Mayo a hostess of rare tact and vivacious charm. They became the parents of eight children, Margaret, Dorothy, Charles William, Edith, Joseph Graham, Louise, Rachel and Esther, of whom Margaret and Rachel died in infancy; they had one adopted daughter, Marilyn, and a foster son, John Nelson. Dr. Charlie was happiest when his family were about him, as they always were when he was at home.

The outstanding qualities of Charles H. Mayo were his capacity for friendship, his sympathetic understanding of and approach to the common man, his catholicity of interests, his resourcefulness and ingenuity as a surgeon. Dr. Morris Fishbein said of him, "He was a man who understood how to talk to all mankind and who knew how to convey the story of medicine in its best way."

Genial, kindly, responsive to friendliness, for his own fullest enjoyment Dr. Mayo needed a group about him and the more varied the better. So diverse and so numerous were his interests and talents that life was endlessly fascinating to him. Student of books though he was, one who knew him well has said that he learned more from observation and listening than he did from study. He had the gift of gleaning from his travels not only useful scientific knowledge but innumerable interesting and amusing impressions, of social customs, art, music, architecture, government and what not. As a conversationalist and as a public speaker he had a charm all his own, a sense of humor that triumphed over the most formal occasion. When assigned a set subject, although he treated it with due consideration, he would interpolate remarks on many unrelated subjects, to the delight of his hearers and to his own enjoyment.

His mechanical ingenuity, which became of such great service in surgery, was an inherent gift. When he was a young boy, he could tinker toy engines successfully and repair deficiencies in household equipment; he constructed a workable telephone between home and his father's office. When St. Mary's Hospital was built, he designed and helped to install a hydraulic elevator, which was serviceable although it had a peculiarity that the designer could not then obviate: the apparatus could be operated only from inside the car, so that when the elevator had been left at an upper floor and was needed on a lower floor, someone would have to climb the stairs and bring it down. Dr. Mayo designed the first operating table used in the hospital, and devised superior surgical instruments, among them dissecting scissors, curved and straight.

A surgeon of exceptional skill and scientific discernment, he made contributions of enduring value in many fields of surgery, and originated operative procedures. In his earlier professional years he operated for cataract and for conditions of bones and joints. His method of operation for bunion came into general use. His anterior transverse open operation for suppuration of the knee joint met adoption in cases of the type in which amputation formerly had been practiced. He was early to operate successfully for brain tumor and for trigeminal neuralgia; one of the first to devise operations to relieve nerve compression by removal of supernumerary (cervical) ribs. He evolved a surgical technic to improve circulation of the blood in cranial skin grafts. He introduced an easy and ingenious method of vein stripping, one of the early procedures of surgical treatment for varicose veins, and designed an instrument for performing the operation. He advocated and used surgical treatment for arteriovenous aneurysms. In dealing with carcinoma he advocated and practiced removal of carcinoma and with it the associated lymph nodes at primary operation rather than waiting until the nodes were involved. He was early in devising operations for carcinoma of the tongue, cheek and jaw; and he brought to popular medical attention the two-stage exteriorization operation for carcinoma of the colon. To surgery of the urinary tract he contributed successful implantation of the ureters into the sigmoid (adaptation of the experimental method of Coffey) in the human patient for congenital exstrophy of the bladder; he developed the transperitoneal operation to open the bladder for removal of vesical tumors. He perhaps is best known for his researches on exophthalmic goiter, with Drs. H. S. Plummer, W. M. Boothby and E. C. Kendall, in working out the causation and frequency of the disease, methods of preliminary medical treatment and surgical procedures; his theory and practice have resulted in early diagnosis and cure in a high percentage of cases.

He had an almost uncanny ability to see possibilities of surgical treatment and to devise and adapt new operations. This facility was well known to his fellow surgeons, so that in 1914, when the American Surgical

Association met in Rochester, the visitors wanted to put it to the test. They asked Dr. Will, "Can't you pick out a case Charlie has not seen, a patient who has been operated on unsuccessfully two or three times and for whom little or nothing can be done surgically?" Dr. W. J. Mayo chose for presentation at the surgical clinic a patient who had been operated on seven times elsewhere and whose condition apparently was beyond surgical relief; the visiting surgeons saw the woman and agreed on the uselessness of further surgical intervention, and they were prepared to see Dr. Charlie baffled. When he was called in, he looked at the results of previous operations and whistled in dismay; then, to the visitors' amazement, he outlined an entirely new plan of operative procedure and carried it out successfully—and with lasting benefit to the patient.

Dr. C. H. Mayo did meritorious work toward the organization and functioning of medical societies, county, district, state, national and special. In 1888 he became a member of the Olmsted County Medical Society and of the Minnesota State Medical Society, and thereafter in the state group served at various times on committees, as censor, as chairman of the section on surgery and, in 1905-1906, as president. The great medical and surgical organizations of the country conferred presidency upon him: the Western Surgical Association, in 1904-1905; Society of Clinical Surgery, 1911-1912; Clinical Congress of North America, 1914-1915; American Medical Association, 1916-1917; American College of Surgeons, 1924-1925; Chicago and Northwestern Railway Surgical Association, 1927-1928; American Surgical Association, 1932-1933; Minnesota Public Health Association, 1932-1934; Interstate Postgraduate Medical Association of North America, 1934-1935. He was an active member of numerous other medical societies and of many groups devoted to the arts and sciences and to economic, civic and social welfare, and served on many committees and boards of trustees of those organizations. The list of his memberships, honors, medals and awards is extraordinarily comprehensive. He accepted such honors as meant for his associates as much as for himself. His record in Masonry was exceptional. His distinguished military record was discussed earlier in this paper. He was a supporting member of the Episcopal Church.

Dr. Mayo was actively interested in education of youth, and particularly in the extension and improvement of the public schools of Rochester. He was vice president of the city school board from May 15, 1915, to March 15, 1923. In this period he was influential in establishing in Rochester the junior college, the first junior college in the state, which gives the first two years of the university course. Enthusiastic about the Boy Scouts of America, he served as a member of the National Council and on committees of health and safety. In June, 1932, he became a trustee of Northwestern University and of Carleton College.

(To be continued in the April issue.)

President's Letter

FOR THE NINETY-EIGHTH TIME

For the ninety-eighth successive year, the Minnesota State Medical Association will meet in scientific, social and sports sessions—carrying on a tradition of professional and personal fellowship that has contributed to this state's reputation as an outstanding medical center.

This year the meeting is being held in Rochester, April 30, May 1 and 2, with business sessions beginning on Saturday, April 28. The Council and the House of Delegates will be considering important policy developments for the coming year and will hear reports on Committee work during 1950.

The Committee on Scientific Assembly has prepared a scientific program, especially designed to fit into busy schedules of practicing physicians and keyed to subjects of most general and current interest. Six topics will occupy the three-day session: Monday, April 30, "Fractures" in the morning and "New Drugs" in the afternoon; Tuesday, May 1, "Pulmonary Diseases" in the morning and "Acute Abdominal Conditions" in the afternoon; Wednesday, May 2, "Cardiac and Peripheral Vascular Diseases" in the morning and "Allergy" in the afternoon.

Dr. Wendell G. Scott, Associate Professor of Clinical Radiology, Washington University School of Medicine, St. Louis, Missouri, will present the Russell D. Carman Memorial Lecture; and Dr. Paul W. Schafer, Professor of Surgery and Chairman of the Department of Surgery, University of Kansas School of Medicine, Kansas City, Kansas, will give the Arthur H. Sanford Lectureship in Pathology.

Golf and skeet and trap shooting tournaments have been planned for Sunday, April 29, with attractive prizes and the Pfunder and Smith trophies to lure sportsmen.

Many groups are planning special dinners and luncheons—the Minnesota Chapter of the American Academy of General Practice, the Minnesota Medical Foundation and Alumni, the Minnesota Chapter of the American College of Chest Physicians, the Minnesota Radiological Society, the Northwestern Pediatric Society—to name a few.

It's a meeting that no physician can afford to miss—whether he is seeking knowledge, recreation or fellowship. Tear April 30, May 1 and 2 out of your professional calendar and plan to be there when the 98th annual convention of the Minnesota State Medical Association opens.

J. F. Norman

President, Minnesota State Medical Association

Editorial

Carl B. Drake, M.D., *Editor;* George Earl, M.D., Henry L. Ulrich, M.D., *Associate Editors*

AMERICAN MEDICAL EDUCATION FOUNDATION

MOST medical schools are in more or less financial difficulties due to a number of factors—the increase in costs due to inflation, diminished returns from investments and the end to the support of medical students by the Federal Government.

How can the income of medical schools be increased? Certainly not by increased tuition. There is little prospect of a return of the days when large bequests were obtainable from wealthy individuals. To the proposal that the Federal Government be called upon to subsidize the medical schools, the answer of the medical profession is "No." Government subsidy means government control, according to a U. S. Supreme Court ruling. As an indication of how strongly the medical profession feels about the importance of medical schools maintaining their independence of the Federal Government, the Board of Trustees of the AMA appropriated a half-million dollars to establish what is to be known as the American Medical Education Foundation to accept funds to be used to support the hard-pressed medical schools of the country. The action of the Board of Trustees was unanimously approved by the House of Delegates of the AMA in December.

Physicians are urged to contribute, not a mere token contribution, but $100 per member if possible. Contributions of $100 have been coming in to the AMA office from individual members since the day following the announcement of the establishment of the fund. The California State Medical Association sent in a check for $100,000 for its members from the Association's reserves.

It is estimated that in the neighborhood of $10,000,000 will be needed yearly by the medical schools to maintain them in their present efficient status. Funds should be available this spring, and members are therefore urged to send in contributions promptly. Every physician has received more from his medical school than he paid in tuition. It is true that some physicians have paid back in services rendered to their Alma Maters, in some instances manyfold. Some have already made generous contributions to their Alma Maters and should not be expected to contribute to the American Medical Education Foundation.

While medical schools can be readily classified as publicly or privately owned, when the source of their operating funds is considered, the distinction is not so sharp. Publicly owned schools in many instances rely heavily on endowments and current gifts from private sources; on the other hand, privately owned schools receive some financial aid from city, state or federal tax funds. It is therefore entirely consistent with the existing pattern of medical school support that the National Fund for Medical Education not discriminate between publicly and privately owned institutions. No restrictions, also, are to be attached to the contributions to medical schools.

Contributions, both small and large, should be sent to the American Medical Education Foundation, 535 North Dearborn Street, Chicago 10, Illinois. Contributions are, of course, deductible for Federal income tax purposes.

THE AMERICAN ACADEMY OF GENERAL PRACTICE

ON MAY 1, 1946, a small group of Minneapolis physicians met to initiate an association of general practitioners. Up to that time, there was no local organization which those in general medical and surgical practice could call their own. As far as this writer knows, there was no such association anyplace in the country at that time.

A large number of specialty groups have been formed over a period of many years, and additional groups are still being formed. These groups were organized for mutual benefit and general fellowship, as well as for specific promotion and advancement of these various specialties. The individuals in each group found that their problems were similar and that their aims followed the same general path. It was natural that many common ties would bind these individuals into a cohesive group. It was likewise natural that those who have a common interest in the general practice of medicine should wish to have their own organization.

After the Minnesota group—then known as the American College of Physicians and Surgeons—began to make headway, other similar organizations sprang up in other parts of the country. It was inevitable that these groups of similar purpose would unite in one larger organization, national in scope. Thus it was the American Academy of General Practice came into being in 1947. The Minnesota group was absorbed February 1, 1948.

In addition to this sketchy account of the organizational background of the American Academy of General Practice, it might be well to dwell briefly on this group's aims and purposes. At the outset, it should be pointed out that this is not an "anti-specialists" association or a "gripers" organization. In the very beginning some of the cohesiveness of the local group was motivated by indignation over staff regulations in some of the hospitals. In the main, the causes for complaints and dissatisfactions have been eliminated, and the Academy's primary concern now is the building up of that great segment of the medical profession—the general practice group. The Academy's purpose is that of mutual fellowship—its paramount aim, the betterment of the general practice of medicine.

The American Academy of General Practice publishes its own journal—the "G.P." This is conceded to be a very fine publication. The editor is the inimitable Dr. Walter Alvarez. The organization sponsors an excellent annual meeting and encourages postgraduate study in the interim by giving credits for such study. The American Academy of General Practice also has issued a manual on the establishment of Departments of General Practice in Hospitals. The principles expressed therein have been incorporated in the "Manual on Hospital Standardization" of the American College of Surgeons.

It is only natural that the older, more established medical organizations would look with some suspicion at this new organization during its early development. The American Academy of General Practice is now definitely past its infancy and gives every promise of robust growth and stable character.

The Editorial Staff of MINNESOTA MEDICINE feels that it voices the feeling of the membership of the Minnesota State Medical Association in again affirming* its confidence in the American Academy of General Practice and in wishing the Academy and its publication "G.P." every success.

BILL S.1, SECTION 23

THE SOCIALIZERS in Washington are ever on the alert to seize opportunities to involve the Federal Government in providing medical care for U. S. citizens. The serpent of socialistic governmental medical care is scotched—not killed.

The latest example is Bill S.1 recently introduced in the U. S. Senate. Section 23 of Bill S.1 authorizes the President to socialize medical care for a large segment of the population—those rejected for failure to meet the standards for physical and mental fitness established for the draft. The field involved is only vaguely related to defense. The Bill proposes to take advantage of the draft to provide medical care at the expense of the Federal Government for those rejected. While medical men would recognize that here are citizens, a portion of whom—but probably a smaller portion than most people think—have remediable defects which should be cared for, yet we ask why at governmental expense? This would be extension of state medicine for several million more citizens.

The profession is downright opposed to Bill S.1. Rejected draftees who have defects uncovered in the process of the draft should obtain medical advice on their own responsibility and, if unable to finance a medical examination and treatment, should consult one of the many facilities provided for the medically indigent. Bill S.1, if enacted, would cost the taxpayers billions, a large portion of which would be spent uselessly for disabilities beyond the power of medical science to alleviate or cure. And this Bill is proposed at a time when the country is forced to exert all its energy and resources in providing military defense and economizing in every other non-essential governmental activity. When will our lawmakers realize the seriousness of our financial condition with inflation still on the up grade and the people taxed to the breaking point?

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* Editorial, General Practice and G.P. Minnesota Med., 33:715, (July) 1950.

FERTILITY IN CRYPTORCHIDS

THE ARTICLE on "Fertility in Cryptorchids" by Dr. Charles E. Rea, which appears in this issue, contains the operative results following Wangensteen's modification of the Keetley-Torek operation on eight young men with bilateral cryptorchidism.

According to the author, this report includes all his bilateral cases in which operation has been performed ten or more years ago. All eight of his subjects are married, no pregnancy has resulted, none of the testes is normal in size, and in the four tested no sperm was found on testicular biopsy.

To the unbiased reader, this would seem to be an honest admission of 100 per cent failure in the main objective of the operation—the development of a normal functioning testis by placing it in its normal position. It would seem that the author's statement, "There is no question but that the placing of an undescended testis in the scrotum allows the gonad to develop to varying degrees," requires further amplification.

Dr. Rea makes the distinction between pseudocryptorchidism and true undescended testicle as others do. The term pseudocryptorchidism is used for those cases in which the testis at times is palpable and can be pushed down into the scrotum. In the author's opinion, these are the cases in which spontaneous descent usually occurs. There is general agreement on this point. But how about the youngsters in whom upon examination the testis is not palpable? They would seem to be true cases of cryptorchidism. What percentage of these testes will fail to descend spontaneously? Just which ones will be "anatomically retained" no one can predict. That only a small percentage of these true cryptorchids —testes that cannot be palpated—will fail to descend at puberty has been contended, with considerable supporting evidence.* If the great majority of undescended testes descend spontaneously, are normal in size and therefore presumably functioning normally, there is every reason to refrain from operation. If it were a fact that only a few undescended testes descend spontaneously, still that would be a sufficient reason for refraining from operation, if operation is 100 per cent failure as indicated by Dr. Rea.

It would be of interest if other surgeons would report on their experiences with fertility in patients operated upon for bilateral undescended testes. It is in the bilateral case that it is highly important that the correct advice be given.

FEE SPLITTING STILL

IN HIS presidential address before the Ramsey County Medical Society, which appears in this issue, Dr. Warner Ogden points a finger of scornful ridicule at the surgeon who allows the referring physician to assist (?) at the operation in order presumably to justify a splitting of the fee. Most surgeons who merit the appellation have their teams of one or more assistants. The technical performance is of a much better quality as a result of the team work. An outsider who may not have assisted at an operation since his interne days and may never have really learned operating-room technique is of no real help in the performing of the operation, and the danger of disrupting his aseptic technique is not only a hazard but should be distracting to the surgeon. The would-be assistant is taking a fee which he did not earn. The surgeon, in reality, has split his fee in order to induce the referring practitioner to send him more work.

After all that has been said and written about the evils of splitting fees and the stand that has been taken by county, state, national and surgical societies, it seems unbelievable that the practice still continues. All one has to do to find out who the surgeons are who place "business" before the welfare of their patients in this manner is to peep into the operating rooms or keep his ears open in the cloak-rooms of the hospitals. The guilty ones may rest assured that their identities are well known among their confreres.

The medical societies have taken a stand on this practice. It could be stopped by the Executive Committees of the hospitals. They, therefore, share in the guilt.

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* Johnson, William W.: Cryptorchidism. J.A.M.A., 113:25, (July) 1939. Drake, Carl B.: Spontaneous late descent of the testis. J.A.M.A., 102:759, (March 10) 1934.

MEDICAL ECONOMICS

Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association
George Earl, M.D., Chairman

LEGISLATURE GETS MENTAL AID BILL

A new bill before the Minnesota state legislature, provides for the licensing of mental aids in the state. Leaders in the Minnesota mental health program favor this plan, and it has Governor Youngdahl's support, who said of it, "This plan will give incentive to our psychiatric aids. They will have a goal to strive for."

The bill would set up a five-member board to license aids, but would not make it more difficult to get workers, according to the governor. The plan would be a voluntary one—any aid who wishes to qualify may do so.

As it stands now, H. 113 requires that any person who wishes to become a registered psychiatric aid must take an examination, which would be "practical and designed to test the applicant's fitness, education, training and experience" to perform successfully the duties of a psychiatric aid.

It is felt that this bill would greatly aid Minnesota's mental health program by providing more competent people to work with the mentally ill. Experts in the mental health field have called the aid "the most important worker in the mental hospital. The aid works more closely with the patient than any other member of the hospital staff."

CONGRESS TO WEIGH NEW HEALTH BILLS

As the 82nd Congress meets amid stiff arguments and petty bickering, it finds itself confronted with many new and many old proposals concerning the health and welfare of the nation as a whole. Of the more than 1,000 bills introduced so far in the House alone, about one in every ten deals with medical care, hospitalization or some other health issue.

Among the carry-overs from the 81st Congress are: national health insurance, income tax deduction of medical and dental expenses, Federal support of school health services, income tax deduction of sums paid into prepayment health service plans, Hill-Burton Act amendments, various veterans' medical care bills, greater benefits for dependents of military personnel.

The new bills include one dealing with Federal aid to nursing education; the upholstered bills on support of local public health units; H. R. 1502, restoring the $65 million cut from this year's Hill-Burton operations; S. Res. 39, giving a two-months time extension (until March 31) to the special investigation of prepayment medical and hospital plans; H. R. 1611, establishing a National Poliomyelitis Institute; H. R. 1644, offering $100,000 a year for life, to individuals discovering "general cures" for cancer, heart disease and poliomyelitis; S. 486, enlarging utilization of Indian hospitals; and S. 513, to study injuries to health suffered by Americans who were prisoners of war.

JOURNAL CALLS BILLS "SAME OLD PACKAGE"

Looking over President Truman's slate of bills and his budget for the coming fiscal year, the *Wall Street Journal* could only call the whole thing "the same old package." No doubt the *Journal* felt, too, that the package's wrapping and ribbon—increased defense spending—was an excellent disguise with which to push through administration welfare schemes.

Checking Truman's list of proposed legislation, the *Journal* found nothing new and spectacular:

> "The old, rejected Brannan farm plan in a disguised form, which by means of subsidies, would give high prices to farmers for their perishables and simultaneously low prices to the housewives.
>
> "A government-operated and government-subsidized national medical plan.
>
> "Expand the federal government's costly unemployment insurance program.
>
> "Federal government subsidies for the nation's schools, including nursery schools. . . .

"And—Congress willing, of course—we should also go ahead with a general expansion of the government's power to look after our private lives, including an expansion of rent control, the adoption of a 'fair employment' law and the complete control of prices and wages."

The *Journal* exposes the flagrant disregard for economy in government at a time when the nation's economy should run smoothly:

"Behind all this program is a philosophy which says that the cost of anything or everything is a matter of no consequence whatsoever, that a government can tax as much as it will and can spend as much as it will without hurt and provide not only anything but everything at once. Hence the mere fact that a government is tripling its armament expenses need not in the least deter it from spending as many other billions as it wishes."

Congress Will "Reject" Bills

The *Journal* expresses many Americans' attitude when it states that the President's proposals are the same as his old Fair Deal package, repeatedly presented to Congress, and which Congress "just as repeatedly, has rejected . . .":

"These economic pills can be covered with a 'defense emergency' coating now. But they're pills just the same. We will expect Congress to reject them even more firmly now."

WRITER ADVISES ETERNAL VIGILANCE

Felix Morley, writing in *Nation's Business* recently, struck a warning to Americans concerning the vast national power and control which come with any national emergency declaration.

President Truman's "national emergency," coupled with his "same old package" legislation, represent a threat to American freedoms, Mr. Morley said. He felt that "the people themselves, and their elected representatives, must be on guard to prevent undue encroachments on their own rights by their own officials. And this eternal vigilance, which is the price of liberty, is doubly imperative at a time when external danger makes usurpation of power by officials seem reasonable, if not essential."

Sensing that President Truman may be trying to put something over on them by slipping Fair Deal legislation into his huge budget which includes defense legislation, Americans can agree with Mr. Morley's view:

"Although the fundamental safeguards of individual liberty continue to stand, it is obvious that the powers now assumed by the Executive constitute a potential threat to every American home. This is not less true because this centralized power is being built up to meet the threat of external aggression. Many a people have lost their freedom in the belief that they were defending it against a foreign foe. Indeed the most subtle way to destroy liberty is to argue that it is a fair-weather luxury which must be sacrificed during a period of national peril."

Americans will also agree that during a time of national peril, it is even more important for liberty to be guarded, for only a free people can best aid themselves to reduce that national peril. Conscientious citizens resent and combat the introduction of any legislation tending to threaten their fundamental liberties. They, like Congress, do not find it easy to swallow Truman's defense-legislation-coated pill because they know it contains harmful ingredients in varied ominous forms.

Mr. Morley concludes that the remedy is not to give more power to officials:

". . . the remedy certainly does not lie in granting ever more power to officials who cannot now effectively command that which is already in their grasp. It lies, rather, in restoring the balance that our forefathers wrote into our Constitution—a document which could profitably be dusted off and reread before it becomes a dead letter.

"Such re-examination would recall Madison's warning that, while the first necessity is a government that can control the governed, it is of equal importance to insure that the government shall be obliged to control itself."

SOCIALIZED MEDICINE CALLED ALIEN BLIGHT

A recent editorial in the *Seattle Post Intelligencer* applied one of the most accurate labels to compulsory health insurance that has yet been used:

"Compulsory health insurance is not an American invention. It originated in Bismarck's Reich: and it had grievously impaired German medicine long before the Nazi degradation started . . .

"The progress of medical science has been impeded, and the quality of medical service has deteriorated.

"Nonetheless, the 'social planners' want to import the alien blight of socialized medicine into this country."

Lauds Medical Profession

Praising American doctors for their crusade against socialized medicine, the newspaper said that "never before in the United States, however,

(Continued on Page 274)

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RESEARCH IN THE SERVICE OF MEDICINE

ACCEPTED COUNCIL ON PHARMACY AND CHEMISTRY AMERICAN MEDICAL ASSOCIATION

✦ Reports and Announcements ✦

SECOND INTERNATIONAL POLIOMYELITIS CONFERENCE

The second International Poliomyelitis Conference will be held at Copenhagen, Denmark, September 3 to 7, 1951. This will constitute the first formal meeting of the International Poliomyelitis Congress. Mr. Basil O'Connor is president of the Congress, and the National Foundation for Infantile Paralysis and the Danish National Association for Infantile Paralysis will sponsor the Congress. Dr. Niels Bohr is president of the Conference.

Governments are invited to send representatives to the Conference, and invitations are also sent to universities and scientific institutions as well as to scientists and doctors. The four official languages will be English, Franch, German and Spanish, and simultaneous interpretation into each of the three languages not being used at the moment will be made, just as at the United Nations.

The *M.S. Stockholm* of the Swedish-American Lines will sail from New York on August 25, arriving at Copenhagen on September 2. Reservations for sailing are to be made through Thomas Cook & Son, 587 Fifth Avenue, New York 17, N. Y.

AMERICAN GOITER ASSOCIATION

The 1951 meeting of the American Goiter Association will be held in the Deshler-Wallick Hotel, Columbus, Ohio, May 24, 25 and 26.

The program for the three-day meeting will consist of papers dealing with goiter and other diseases of the thyroid gland, dry clinics and demonstrations.

MICHAEL REESE HOSPITAL POSTGRADUATE SCHOOL

The Michael Reese Hospital Postgraduate School is offering a one-week course in "Clinical Dermatology—Refresher Course in Diseases of the Skin for General Practitioners." This full-time, intensive course will meet from April 2 to April 7. Clinics and lectures will be conducted by the members of the Department of Dermatology and Syphilology.

The school is also offering a one-week course in "Surgery—Indications, Pre-operative and Post-operative Care" from April 9 to 14. Clinical and didactic material in this full-time course will be presented by members of the Department of Surgery and co-operating departments.

A two-week course will also be offered in "Recent Advances in Internal Medicine." This full-time, intensive course will meet from April 30 to May 12. Clinical and didactic material pertaining to recent advances in diagnosis and therapy will be presented by members of the Department of Internal Medicine, other clinical departments and the Division of Laboratories and Research. For further information, address: Dr. Samuel Soskin, Dean, 29th St. and Ellis Ave., Chicago 16, Illinois.

CRIPPLED CHILDREN SERVICES

1951 Spring Clinic Schedule

Place	*Date*	*Building*	*Counties*
St. Cloud	March 31	Technical High	Stearns Benton Sherburne
Thief River Falls	April 7	High School	Pennington Marshall Red Lake Roseau Kittson
Austin	April 14	Central High School	Mower Freeborn Dodge
Faribault	April 21	High School	Rice Goodhue, Carver Dakota, Waseca Steele, Scott
Grand Raids	April 28	Senior High	Itasca Cass
Detroit Lakes	May 5	High School	Hubbard Mahnomen Becker Clay
Brainerd	May 12	Franklin Jr. High	Crow Wing Wadena Mille Lacs Todd Cass Aitkin
Worthington	May 19	Grade School	Nobles Jackson Pipestone Cottonwood Murray Rock
Moose Lake	May 26	High School	Aitkin Carlton Pine Cook, Lake
International Falls	June 2	Alexander Baker Sch.	Koochiching Lake of Woods
Morris	June 9	High School	Stevens, Grant Traverse, Pope Douglas Big Stone

MINNESOTA SOCIETY OF NEUROLOGY AND PSYCHIATRY

The regular meeting of the Minnesota Society of Neurology and Psychiatry was held in Saint Paul on March 13.

The scientific program included the following:

"A Clinical Evaluation of Carotid-Jugular Anastomosis in Mental Deficiency; a Report of Ten Cases" by Dr. Ivan Baronofsky, Dr. J. W. Bussman, Audrey Stenberg, and Dr. Reynold A. Jensen.

"Drug Therapy in Parkinsonism," inaugural thesis, by Dr. Sidney K. Shapiro.

CLARENCE M. JACKSON LECTURE

Dr. Carl E. Badgley, professor of surgery at the University of Michigan, delivered the annual Clarence M. Jackson lecture at the University of Minnesota on March 1. The title of his address was "Fractures about the Hip—Early and Late Therapy."

The program, which was open to the public, is sponsored each year by Phi Beta Pi medical fraternity as a memorial to Dr. Jackson, former head of the University's anatomy department who died in 1947.

(Continued on Page 252)

"... *in the minds of men* ..."

In treating the disorders that exist in the minds of men, psychiatric nursing plays a vital role. Proper care can be given patients only by properly trained psychiatric nurses.

In view of the present shortage of such trained nurses, and the desperate need for them, the Glenwood Hills Hospitals School of Nursing, Neurology and Psychiatry is appealing to you physicians for aid in solving this problem.

By sending us the name of a promising nursing candidate in your community—a girl aged seventeen or over, with a high school education—you will be doing your part to alleviate this critical nursing shortage.

Our one-year course in psychiatric nursing is tuition-free. Our graduates have an excellent professional career before them.

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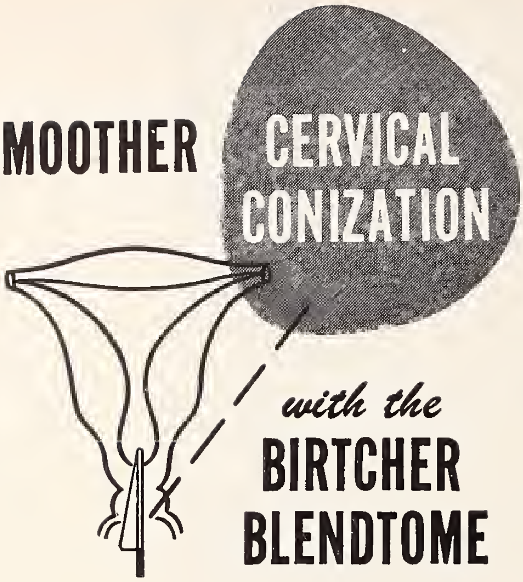

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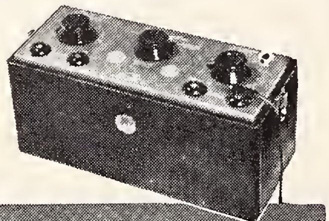

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(Continued from Page 250)

MINNEAPOLIS ACADEMY OF MEDICINE

Dr. John A. Haugen was elected president of the Minneapolis Academy of Medicine at the annual meeting of the organization on February 19. Other officers include Dr. Donald C. MacKinnon, vice president; Dr. Chauncey N. Borman, secretary, and Dr. U. Schuyler Anderson, recorder.

HENNEPIN COUNTY SOCIETY

President-elect of the Hennepin County Medical Society is Dr. William R. Jones, who will succeed Dr. Reuben F. Erickson as president next October. Vice presidents include Dr. Reuben A. Johnson and Dr. James B. Carey. New members of the board are Dr. Robert F. McGandy and Dr. Silas C. Andersen.

McLEOD COUNTY SOCIETY

Election of officers was held at the annual meeting of the McLeod County Medical Society in Glencoe on January 18. Dr. L. L. Kallestad, Brownton, was elected president of the group, succeeding Dr. Arthur Neumaier of Glencoe. Dr. J. D. Selmo, Norwood, was named secretary-treasurer.

RAMSEY COUNTY SOCIETY

New officers of the Ramsey County Medical Society were installed at a meeting of the group in Saint Paul on January 29. President is Dr. F. G. Hederstrom; secretary-treasurer, Dr. Laurence Hilger, and president-elect, Dr. J. P. Medelman.

RICE COUNTY SOCIETY

At the annual meeting of the Rice County Medical Society on January 16, Dr. C. A. Traeger, Faribault, was elected president of the organization. Other officers named include Dr. R. F. Mears, Northfield, vice president, and Dr. J. J. Kolars, Faribault, secretary-treasurer.

Dr. Heinz Bruhl, Faribault, Dr. R. H. Buesgens, Waterville, and Dr. Guy Walter, Farmington, were accepted into membership in the society. The membership now totals thirty-five.

WASECA COUNTY SOCIETY

At a meeting of the Waseca County Medical Society in Waseca on January 16, Dr. S. C. Oeljen was elected president of the organization. Also named to office were Dr. G. E. Olds, vice president, and Dr. Anthony Ourada, secretary-treasurer.

WINONA COUNTY SOCIETY

Dr. Paul Heise was elected president of the Winona County Medical Society at its meeting in Winona on January 8. He succeeded Dr. H. J. Roemer in the office.

Other officers named included Dr. L. F. Johnston, vice president; Dr. H. R. Schmidt, secretary, and Dr. W. O. Finkelnburg, treasurer.

(Continued on Page 254)

Have you tried the Aerohalor in treating secondary invaders *of the Common Cold?*

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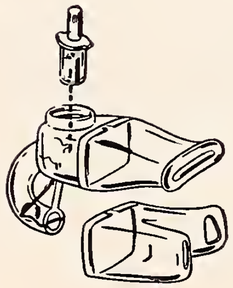

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[1] Krasno, L., and Rhoads, P. (1949), The Inhalation of Penicillin Dust; Its Proper Role in the Management of Respiratory Infections, Amer. Prac., 11:649, July.

(Continued from Page 252)

CONTINUATION COURSES

Urology.—The University of Minnesota announces a continuation course in urology to be presented at the Center for Continuation Study on April 2 to 6. The course is given under the sponsorship of the North Central Section of the American Urological Association. Dr. C. D. Creevy, professor of surgery and head of the Division of Urology, is faculty chairman for the course.

Distinguished visiting physicians who will participate are Dr. Hugh J. Jewett, Baltimore, Maryland; Dr. Lloyd G. Lewis, professor, Department of Urology, Georgetown University Medical School, Washington, D. C.; Dr. Reed M. Nesbit, professor and chief, Department of Urology, University of Michigan Medical School, Ann Arbor; and Dr. Parke G. Smith, professor and head, Department of Urology, University of Cincinnati, Cincinnati, Ohio.

Lupus Erythematosus.—A postgraduate symposium on lupus erythematosus will be presented at the Center for Continuation Study, April 5 and 6. The symposium is intended especially for doctors specializing in dermatology and internal medicine. A cordial invitation is also extended to general physicians.

Distinguished visiting physicians who will participate include: Dr. John R. Haserick, Cleveland, Ohio; Dr. Paul Klemperer, Mount Sinai Hospital, New York; and Dr. Louis J. Soffer, assistant clinical professor, Department of Medicine, Columbia University, New York City. The remainder of the faculty will be made up of members of the staff of the University of Minnesota Medical School and the Mayo Foundation. The course is given under the direction of Dr. Henry E. Michelson.

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Gynecology.—A continuation course in gynecology will be presented April 9, 10, and 11 at the Center for Continuation Study of the University of Minnesota. The course is intended for general physicians and will emphasize problems of the menopause, uterine myomas, and benign ovarian tumors. Dr. H. C. Hesseltine, professor of obstetrics and gynecology, University of Chicago, will be the visiting faculty member for the course. The course is presented under the direction of Dr. John L. McKelvey, head of the Department of Obstetrics and Gynecology.

Proctology.—The University of Minnesota announces a continuation course in proctology to be presented at the Center for Continuation Study on April 16 through 21. The course is intended for doctors of medicine who are engaged in general practice and surgery. Throughout the course emphasis will be placed upon those anorectal and colonic lesions most frequently seen by practicing physicians. The presentation will be by means of lectures, operative clinics, motion pictures, and seminars. Guest faculty member for the course will be Dr. Robert A. Scarborough, associate professor of surgery, Stanford University Medical School, San Francisco, California. The remainder of the faculty for the course will be made up of clinical and full-time members of the staff of the University of Minnesota Medical School and the Mayo Foundation.

Electrocardiography.—A continuation course in electrocardiography will be presented by the University of Minnesota on May 7 to 11. The course is intended for general physicians and will be presented at the Center for Continuation Study. Dr. George E. Burch, professor and chairman, Department of Medicine, Tulane University of Louisiana, New Orleans, and Dr. Harry E. Ungerleider, medical director of research, the Equitable Life Assurance Society, New York City, will be the visiting faculty members for the course. In addition, Dr. Burch will give the first annual George E. Fahr Lecture on May 8. This lecture is, of course, presented for all physicians and students who are able to attend.

Minnesota Multiphasic Personality Inventory.—A continuation course on the Minnesota Multiphasic Personality Inventory will be presented for general physicians at the Center for Continuation Study on May 14 by the University of Minnesota. The mechanism, interpretation, and clinical use of the test will be discussed.

The immediate need in the control of cancer is for more accurate early diagnosis and to accomplish this desired result there must be offered to the general practitioner more active co-operation with detection centers.

The surgical biopsy still holds first place for accuracy in diagnosis. It is readily available for all extrinsic lesions and whenever possible should be relied upon for the final opinion.

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Hamblen, E. C.: North Carolina M. J. 7:533 (Oct.) 1946.

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*Perloff, W. H.: Am. J. Obst. & Gynec. 58:684 (Oct.) 1949.

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Woman's Auxiliary

MID-WINTER BOARD HEARS DEFENSE SPEAKER

Mrs. Charles W. Waas, President

It is difficult to select a date for the board meeting which will be satisfactory to all, but when January 29 was planned, it was hoped that Minnesota might be enjoying its "January thaw" at that time, and it was thought that the fifth Monday of the month would not conflict with any regular meetings members might have. However, the "January thaw" did not appear. Nevertheless, thirty-nine members braved the weather and attended a very enjoyable and a very interesting meeting.

The subject of cancer played an important part on the program at the Workshop meeting in the fall. At the Mid-Winter Board Meeting civilian defense was the topic, and a most interesting discussion was given by Paul Wilson, a member of St. Paul's Civil Defense Committee. This was followed by an educational film concerning precautions and methods of protection which every citizen must follow in case of an atomic bomb attack. The film was commented upon by Colonel Paul Calder.

There were splendid reports given by various chairmen and county presidents. It is regrettable that the weather made it impossible for so many to attend. It would be profitable to all county presidents to get in communication with any of the state chairmen who might be able to help them with their particular problems. The women who are serving in this capacity are outstanding and they will be very happy to help. Please do not hesitate to write to your president, if there is any help she can give.

SAMPLE DRUGS STILL NEEDED

Mrs. B. E. O'Reilley, Chairman
Committee on Medical and Surgical Relief

Undoubtedly, auxiliary members have started collecting sample drugs, discarded instruments, medical textbooks and journals from their husbands' offices, and packing them for shipment overseas.

Mr. Pedro Velasco, President, Philippino Relief Organization, 3009 Ewing Avenue North, Robbinsdale, Minnesota, will be pleased to accept any number of boxes of drugs and materials. He will repack the drugs and pay the freight charges from Robbinsdale to the Philippines. Mr. Velasco is very enthusiastic about the auxiliary's offer to send drugs—also instruments, books and journals—as his organization is trying to equip a hospital recently built in Manila. Boxes of drugs will also be sent to dispensaries in the Provinces. Boxes of drugs (no books or journals), may be sent to the Medical and Surgical Relief Committee, Inc., 420 Lexington Avenue, New York 17, New York, for shipment overseas.

This is an excellent opportunity for members to do a very worth-while charitable work as drugs are badly needed and will be very much appreciated.

AUXILIARY WATCHES LEGISLATIVE ACTION

Mrs. L. R. Scherer, Legislative Chairman

With both federal and state legislative bodies now in session, doctors' wives should be interested in, and alert to the bills affecting the medical field either directly or indirectly.

Members can watch daily papers to check on the status of Minnesota bills, and can learn which ones the American Medical Association favors on a national basis, with the reasons for their objections to those they disapprove.

The last few years have proven that when information and facts are given to the people, public opinion is formed that is still effective. However, to be effective, the law makers must be made aware of the wishes of the people. Therefore, members should (1) continue to inform themselves; (2) work with other organizations to spread that information; and (3) write to Congressmen and ask others to write also.

If members do these things, they will be participating as good citizens to preserve freedom and democracy at home, during this period of world crisis.

AUXILIARY AIDS OLDSTERS GROUP

The Saint Paul Auxiliary, Ramsey County Medical Society, is supporting a special project in developing an expanded program of leisure time activity for the aged at Capitol Community Center, 190 E. 15th Street, Saint Paul. This center is a Community Chest agency and services a downtown neighborhood, which, because of its age and location, has within it many social problems.

The area has a high incidence of older people living within a short distance of the Center's location. Most of these people are living by themselves in rooming houses and are receiving Old Age Assistance. There are no community facilities in the neighborhood to provide a program for them. The Community Center's program for the aged began in 1947, and has never expanded because of the lack of staff to visit the oldsters and recruit them. The Auxiliary's grant will provide money for a staff leader who will not only give direct leadership, but will make home visits in an effort to get the older people to come.

The Oldsters Group meets every Wednesday afternoon at the Center from 1:00 to 3:30 p.m. While there is an active and varied program consisting of table games, Bingo, crafts, parties, singing and folk dancing, their main emphasis is on chatter and refreshments, to which they eagerly look forward. They also observe birthdays and have monthly parties. The project is designed not only to provide a place where oldsters can come, but to revive their latent and dormant skills and feeling of self-possession, which many of them have long lost. Personal service, in the way of health and case work

(Continued on Page 258)

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**Proc. Soc. Exp. Biol. and Med., 1934, 32, 241-245; N. Y. State Journ. Med., Vol. 35, 6-1-35, No. 11, 590-592; Laryngoscope, Feb. 1935, Vol. XLV, No. 2, 149-154; Laryngoscope, Jan. 1937, Vol. XLVII, No. 1, 58-60*

AUXILIARY AIDS OLDSTERS GROUP

(Continued from Page 256)

referrals, is also a part of the program, and the worker spends some time having individual chats with several of the older people who indicate their desire for it.

The staff includes Mrs. Eleanore Felker, supervisor; Mrs. Robert Dunning, volunteer assistant leader; and Russell Lind, group leader and home visitor.

In addition to financial support, the Auxiliary will help with leadership at special events and with volunteer drivers to help get oldsters who are non-ambulatory, to and from meetings.

MESSAGE FROM COMMITTEE CHAIRMAN

Mrs. John J. Ryan, 2153 Iglehart, Saint Paul, chairman of the In Memoriam Committee requests that all county presidents report to her as soon as possible the names of deceased members to be remembered at the memorial service at the annual meeting of the State Auxiliary. This meeting will be on Tuesday, May 1, Rochester Country Club, Rochester, Minnesota, in conjunction with the annual meeting of the Minnesota State Medical Association, April 30, May 1 and 2, in Rochester.

ASSASSINATION OF GARFIELD

(Continued from Page 233)

We still have sepsis in gunshot wounds, but we are much better equipped to control it than were our professional brothers of Garfield's time. It would seem that the President might well have recovered in our time. This is no reflection upon Garfield's doctors, who, according to the record, gave the most meticulous and scientific care to the President possible in their time.

Honorable James G. Blaine gave the memorial address for President Garfield before Congress on February 27, 1882. He closed with these words:

> "As the end drew near, his early craving for the sea returned. The Stately Mansion of Power had been to him the wearisome hospital of pain, and he begged to be taken from its prison walls, from its oppressive, stifling air, from its homelessness. Gently, silently, the love of a great people bore the pale sufferer to the longed-for healing of the sea. To live or die as God should will, within the sight of its heaving billows, within the sound of its manifold voices; with wan-fevered face, he looked out wistfully upon the ocean's changing wonders, on its far sails, whitening in the morning light, on its restless waves rolling shoreward to break and die beneath the noonday sun, on the red clouds of the evening, arching low to the horizon, on the serene and shining pathway of the stars. Let us think that his dying eyes read a mystic meaning which only the Rapt and Parting Soul may know. Let us believe that in the receding world he heard the great waves breaking on a farther shore, and felt already upon his wasted brow the breath of the Eternal Morning."

SURVIVAL OF THE FITTEST

There are those who, looking at the high maternal mortality and morbidity statistics of the Negro minority in the United States, are inclined to shrug it off with the belief that it is due to "degeneration, a manifestation of imperfect physical development or to simple racial inferiority." Dr. Leonard Goodman, Obstetric Surgeon to the Gold Coast Colony in British West Africa, pointed out at the recent International Obstetric Congress that the American Negro originally sprang from this part of the world. "The slaves from the Western world were mainly derived from tribes in the North and sold to coastal potentates who resold them to the masters of the ships that awaited them." Comparing the American Negro, however, with his native counterpart in Africa, Dr. Goodman is much impressed with the physical superiority of the American Negro. He attributes this in part to the Darwinian principle of the survival of the fittest. "The voyage in a densely crowded and insanitary vessel put these qualities to the greatest test," he said, "and those who eventually landed on this soil must have been the most robust specimens of this race, and no doubt the physical degree of development to be seen in the American Negro of today owes much to this terrible method of selection."

Dr. Goodman notes some similarities, however. The pelves of the native women in Africa are very small, he finds, 20 to 25 per cent smaller than the averages for English or white American women. This, he points out, is also true of more than 20 per cent of American Negro women. While the contracted pelvis occurs much more frequently as a racial characteristic in the black than in the white, he adds that operative delivery is much more frequently required among white women.

"Most European visitors to Accra are impressed by the small size of the pelvis and are astonished at the relative ease of delivery," he says. "Fortunately, our babies are small by English or American standards, but there is also little doubt that the fetal head can withstand extreme degrees of molding more easily than can the white baby."—*Briefs,* Vol. XIV, No. 6.

The school bell must ring each term for butcher and baker, for doctor and lawyer. He who does not constantly enrich his mind with new knowledge may find eventually that his capacity for forgetting will leave little of value behind. And no dog, however old, need ever say that he can learn no new tricks. The doctor, wherever his path may lie, can still emulate to some degree Chaucer's clerk of Oxenford, for "—gladly wolde he lerne, and gladly teche."—Editorial, *The New England J. Med.,* Nov. 9, 1950.

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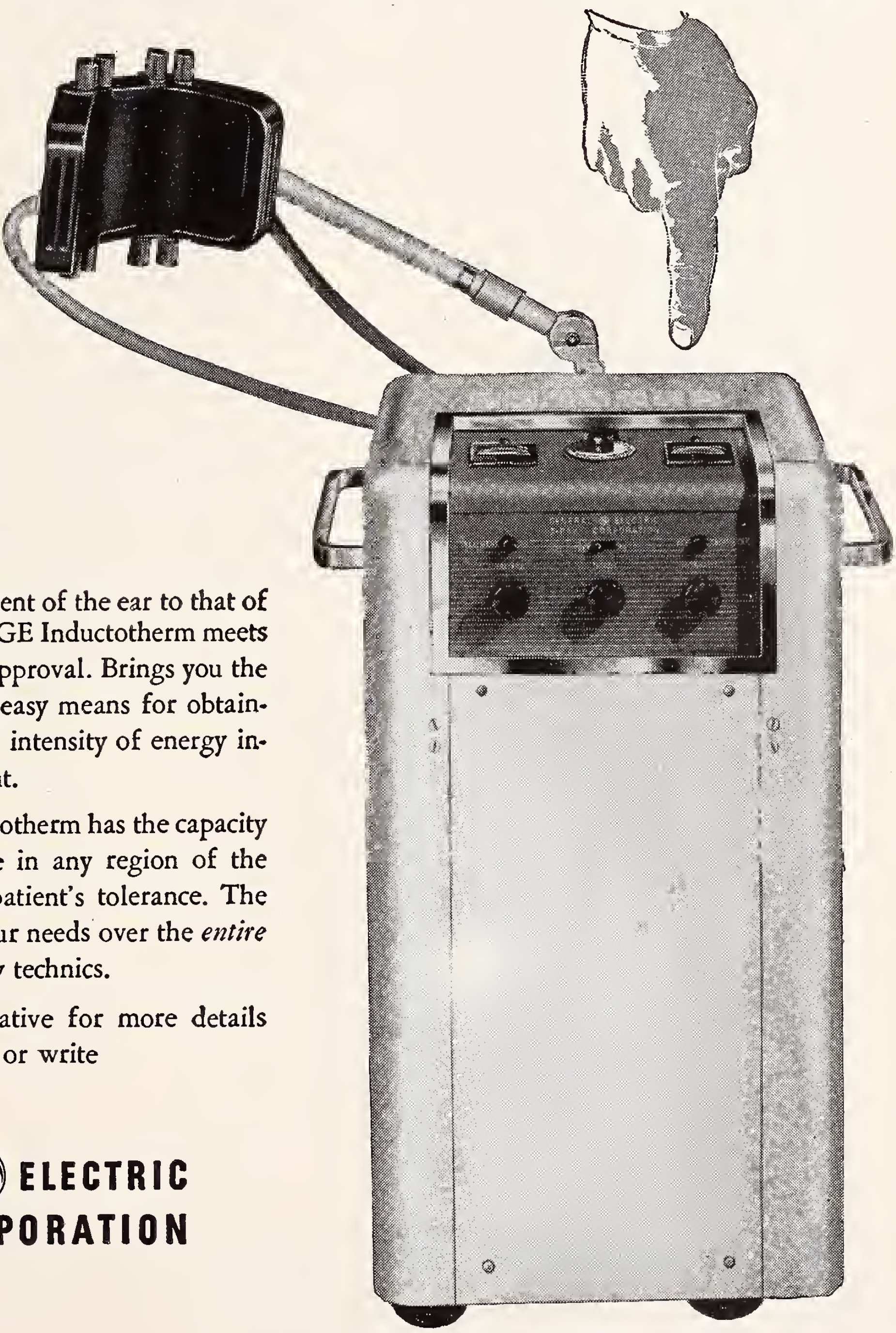

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In Memoriam

KARL DEDOLPH

Dr. Karl Dedolph was born in Saint Paul on May 15, 1887. He was the son of Dr. Fredrick Dedolph, an early member of the Ramsey County Medical Society, whose picture is still preserved in one of the early groups, namely 1889.

Doctor Dedolph's primary education was all accomplished in Germany, his father having sent him there for this training. He then returned and graduated from Mechanic Arts High School in 1905. He graduated from the University of Minnesota in medicine in 1911. He was a member of Alpha Kappa Kappa medical fraternity. From 1911 to 1912, he served as intern at Ancker Hospital. In 1913, he practiced medicine in Roberts, Wisconsin, but after six months there, he returned to Saint Paul and established himself at the corner of Snelling and Selby Avenues. He maintained his office there until the time of his death, June 8, 1950.

From October, 1913, to October, 1915, he served as City Physician under Dr. Ancker. During World War I, he served in the Medical Corps for one and one-half years at Fort Omaha and Camp Travis, San Antonio, Texas.

After the war, he returned to his Saint Paul office and carried on his general practice. He was associated with the Wilder Charities and did faithful service there for twenty-five years.

Doctor Dedolph was always closely associated with the Ramsey County Medical Foundation of Ramsey County and worked diligently to build up the fund. He was a faithful member of the staffs of St. Joseph's, St. Luke's and Miller Hospitals.

He was married in 1916 to Gwendolen Carter, who survives him. They had three children: Karl, who served three and one-half years overseas in World War II; Josephine, who is a graduate nurse from Miller Hospital and is married to Dr. E. F. Hill of Spring Valley, Wisconsin; and Carter, who is now serving with the Army Air Corps in Massachusetts. In addition to these children, he is also survived by three grandchildren.

Walter D. Brodie, M.D.

DAVID D. HILGER, M.D.

David D. Hilger was born April 25, 1877, at Henderson, Minnesota, and died November 12, 1950. In his early years he lived in Pierre, South Dakota. He attended St. Thomas College, Saint Paul, Minnesota, and entered the University of Minnesota Medical School in 1901, graduating in 1905. He interned at Ancker Hospital, Saint Paul, and practiced in Saint Paul thereafter. He was a member of the Ramsey County Medical Society and the Minnesota State Medical Association.

He is survived by five children—three sons, Dr. Jerome A. Hilger, Dr. Laurence D. Hilger of Saint Paul, and Dr. David William Hilger, Oakland, California, two daughters, Mrs. Russell Andre and Mrs. Richard Carley of Saint Paul, and three brothers, Dr. A. W. Hilger and Robert and John Hilger of Saint Paul.

During his long professional life in Saint Paul, Dr. Hilger was beloved by both his patients and his fellow physicians. Even though he retired from practice several years ago, he kept up his interest in his fellow men, and the community of Saint Paul has suffered in the irreparable loss from his death.

J. R. Meade, M.D.

MILO MARVIN LOUCKS

Dr. M. M. Loucks of Kelliher died suddenly of a heart attack on January 29, 1951, at the age of forty-eight.

Milo Marvin Loucks was born April 8, 1902, in South Dakota. He received his M.D. degree from the University of Minnesota. He was a member of the faculty of the medical school for six years and was in charge of x-ray and the laboratory department at the army hospital at Fort Cook. He practiced at one time in Alvarado. In 1937, he became associated with Dr. A. G. Chadbourn of Heron Lake and in 1943 moved to Northome. He had been located at Kelliher for the past five years.

Dr. Loucks is survived by his wife, Ruth; his mother, Mrs. A. Loucks of Trent, South Dakota, one brother, and four sisters.

GUSTAV SCHWYZER

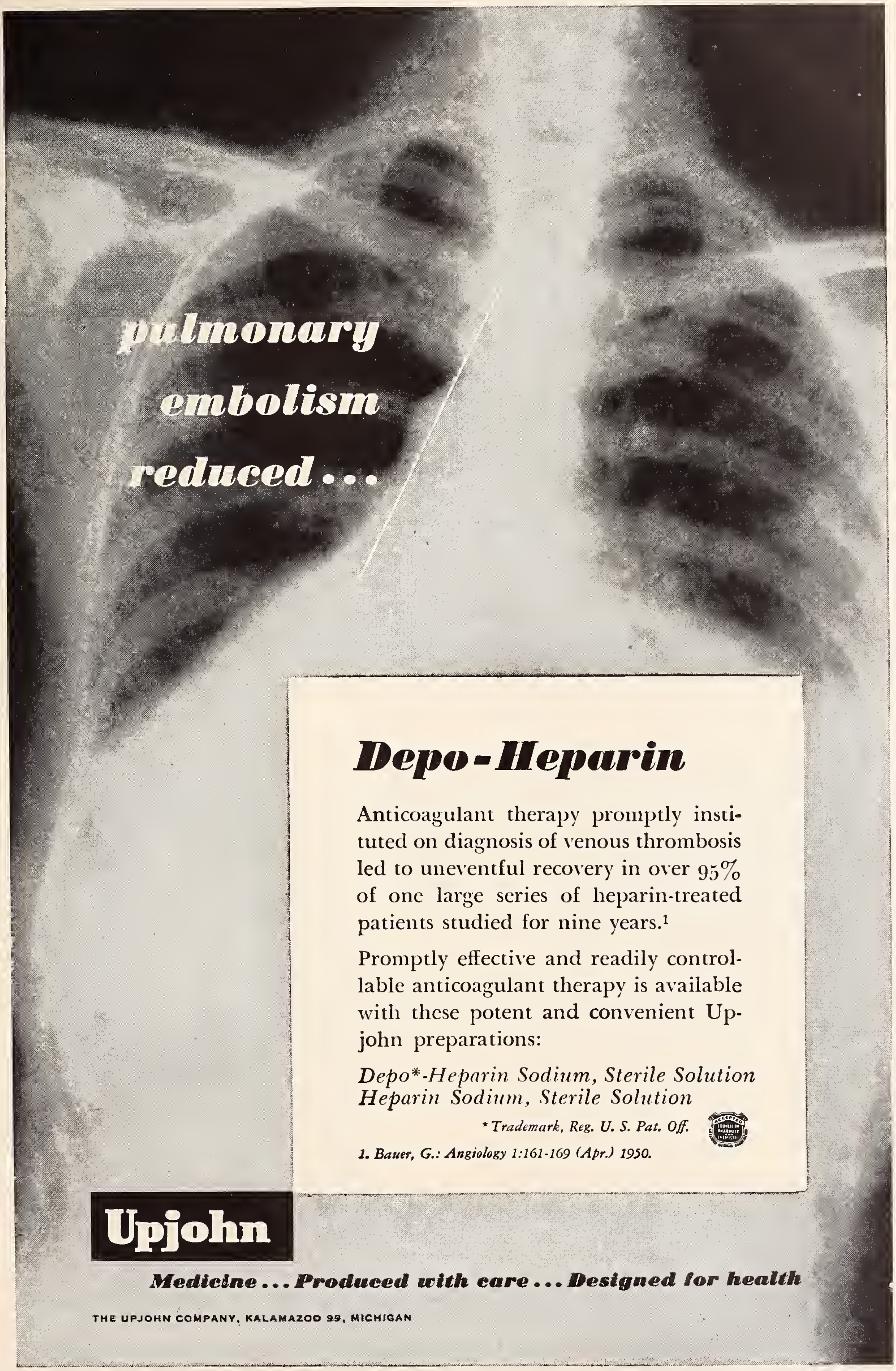
Dr. Gustav Schwyzer, retired Minneapolis surgeon, died at Biloxi, Mississippi, February 2, 1951, at the age of eighty-three years. He was born in Zurich, Switzerland, March 5, 1867.

He obtained his medical education at the University of Geneva and Zurich, Switzerland, graduating in 1892. He had his postgraduate training under Prof. Theodore Kocher in Berne, Switzerland, where he served as first assistant for several years. He also served as an assistant to Otto Kappler.

He came to America and to Minnesota in 1898. He first practiced surgery in St. Cloud from 1898 to 1902 when he moved to Minneapolis. At the height of his professional career in 1931, he was forced into retirement because of a serious automobile accident. After retiring, Dr. Schwyzer lived at 10701 Lyndale Avenue South, in Bloomington, where he maintained a farm for many years.

While he operated occasionally in other hospitals, almost his entire time was spent at the Northwestern Hospital where he was Chief Surgeon until his retirement. During his active years of practice, he was one

(Continued on Page 262)



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1. Bauer, G.: Angiology 1:161-169 (Apr.) 1950.

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Relationship of Stress to Autonomic Lability

Studies in psychosomatics have shown that functional disorders often are a result of the patient's inability to adjust to emotionally stressful situations (stressor factors).

Nervous tension and chronic anxiety, discharged through a labile Autonomic Nervous System, can cause somatic disturbance. [1,2] Such states may involve any one of the organ systems or several at one time. [1,3] The outline below is designed to relate gastrointestinal and cardiovascular symptomatology to the exaggerated response of the autonomic nervous system.

	Physiologic Effects of Autonomic Discharge	
	Sympathetic	**Parasympathetic**
Gastro-intestinal System	**Hypomotility Intestinal Atony Hyposecretion Reduced salivation**	**Hypermotility Gastrointestinal spasm Hypersecretion**
Cardio-vascular System	**Rapid heart rate Peripheral vaso-constriction**	**Slow heart rate Vasodilatation**
Functional Manifesta-tions	**Palpitation Tachycardia Elevated blood pressure Dry mouth and throat**	**Heartburn Nausea-vomiting Low blood pressure Colonic spasm**

The data here tabulated is from references [3,4,5,6,7], given below.

When the clinical picture is suggestive of functional disorder, the diagnosis is supported by the presence of the following indications of autonomic lability:

Variable Blood Pressure
Body Temperature Variations
Changing pulse rate
Deviations in B. M. R.
Exaggerated Cold Pressure Reflex
Oculo-Cardiac Reflex Abnormalities
Glucose Tolerance Alterations

Therapy in these cases is directed toward: 1) relieving the somatic disturbance to prepare the patient for psychotherapy*; 2) guidance in making adjustment to stressful situations and correction of unhealthy attitudes.

*Drug treatment using adrenergic and cholinergic blocking agents in conjunction with sedatives. [8,9,10]

1. Ebaugh, F.: Postgrad. Med. *4:* 208, 1948. 2. Wilbur, D.: J.A.M.A. *141:* 1199, 1949. 3. Williams, E. and Carmichael, C.: J. Nat'l. Med. Assoc. *42:* 32, 1950. 4. Goodman, L. and Gilman, A.: The Pharmacological Basis of Therapeutics, The Macmillan Co., 1941. 5. Katz, L. et al: Ann. Int. Med. *27:* 261, 1947. 6. Weiss, E. et al: Am. J. Psychiat. *107:* 264, 1950. 7. Alvarez, W.: Chicago Med. Soc. Bulletin, 581, 1950. 8. Rakoff, A.: A Course in Practical Therapeutics, Williams and Wilkins, 1948. 9. Karnosh, L. and Zucker, E.: A Handbook of Psychiatry. C. V. Mosby Co., 1945. 10. Harris, L.: Canad. M.A.J. *58:* 251, 1948.

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GUSTAV SCHWYZER

(Continued from Page 260)

of the most distinguished surgeons in Minneapolis and the State of Minnesota.

Dr. Gustav Schwyzer married Mary Lowry in Minneapolis in 1903, who preceded him in death in 1923. She was the daughter of Thomas Lowry, a pioneer in the development of the Minneapolis Streetcar Company. One son, Warner, is residing in Texas. The late Dr. Arnold Schwyzer of St. Paul was his brother.

Dr. Schwyzer was an excellent general surgeon, but he was primarily interested in the surgery of the thyroid. He contributed many articles to the literature on this subject, about which he was considered an authority. In Halstad's "Operative Story of Goiter" his name is mentioned in the first successful operative cases reported by Kocher in 1898.

He was a charter member of the Minneapolis Club, a member of the Founders Group of the American College of Surgeons, Western Surgical Association, Minnesota Academy, and the American Medical Association, Minnesota State Medical Association, and Hennepin County Medical Society. Besides his association with the Northwestern Hospital, he was also Chief Surgeon for many years at the Minneapolis General Hospital, and surgeon for the Minneapolis Street Railway and Great Northern Railroad.

He was characterized by his attention to discipline and his enthusiasm for his professional work.

He is survived by his wife, the former Agnes Jorgens of Minneapolis, and one son, Werner, of Houston, Texas.

OTTO WILLIAM STERNER

Dr. Otto William Sterner died December 7, 1950, at the age of seventy-two.

Dr. Sterner was born in Sweden, October 1, 1878. He graduated from the University of Minnesota Medical School in 1903 and practiced in Cambridge, Minnesota, until 1915, at which time he moved to Saint Paul to practice with his brother, Dr. Ernest G. Sterner.

Surviving are his wife, Hildegard M., three sons and two daughters.

E. R. Sterner, M.D.

Over 25 million persons suffer from some disabling or nondisabling chronic ailment. Measured in any terms the chronic diseases are a staggering national burden, a major source of insecurity and of loss of national income. The most important of the chronic diseases are heart diseases, arteriosclerosis, high blood pressure, nervous and mental diseases, arthritis, kidney disease, tuberculosis, cancer, diabetes, and asthma. Although the incidence of chronic disease increases with age and the progressive aging of our population is one of the factors responsible for the growing importance of the problem, it is important to remember that chronic illness occurs at all ages.—Vlado A. Getting, M.D., Dr.P.H., *Am. J. Pub. Health*, October, 1950.

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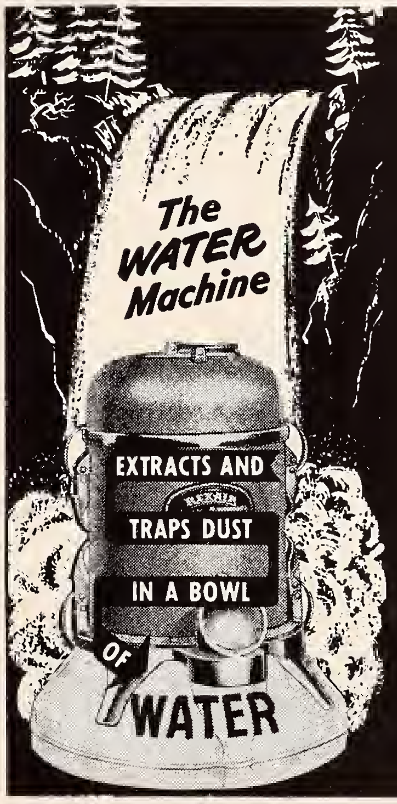

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Of General Interest

The University of Minnesota has become a brucellosis center for the United Nations World Health Organization. Selected because of its pioneering work on brucellosis, the University is the first of three such centers planned by WHO in the western hemisphere.

The center will be directed by Dr. Wesley W. Spink, professor of medicine, who is also president of the Inter-American Congress on Brucellosis. Dr. Spink and his co-workers have already gained wide recognition for their research work in the diagnosis and treatment of brucellosis in humans.

Similar centers will be established in Argentina and Mexico in the near future.

* * *

Dr. B. F. Fuller has opened offices at 755 Lowry Medical Arts Building, Saint Paul, for the practice of internal medicine and cardiovascular disease.

* * *

Dr. and Mrs. J. Donald Sjoding, Mankato, returned on January 27 from Miami Beach, Florida, where Dr. Sjoding attended the University of Florida midwinter seminar in ophthalmology and otolaryngology. He also attended the midwinter convention of the southern section of the American Laryngological, Rhinological and Otological Society.

* * *

At the annual meeting of the Upper Mississippi Medical Association in Brainerd on January 13, **Dr. Ralph D. Hanover** of Little Fork was elected president of the organization. The meeting was attended by members from eleven north central counties.

* * *

Dr. W. Robert Schmidt, a diplomate of the American Board of Surgery, has opened offices at 408 Physicians and Surgeons Building, Minneapolis, for the practice of thoracic and general surgery.

* * *

At last count the **Veterans Administration** had 114,256 operating beds, with 25,000 additional ones under construction or in the planning stage. Under the out-patient care program, home-town pharmacists filled 736,000 prescriptions last year, and more than 4,500,000 others were filled at VA pharmacies.

* * *

Head of the 1951 Easter Seal campaign in Kanabec County is **Dr. Willard F. Nordman** of Mora. He was named to the position by Frank M. Rarig, Jr., state chairman of the Minnesota Society for Crippled Children and Adults.

* * *

It has been announced that 98.3 per cent of the members of the **Colorado State Medical Society** paid their twenty-five-dollar membership dues to the AMA in time to have them included in a check sent to the national society by Harvey Sethman, executive secretary of the Colorado State Medical Society.

* * *

Dr. Gordon R. Kamman, Saint Paul, spoke on "Mental Health" at a meeting of the American Association of University Women at Albert Lea on February 5. More than 100 persons attended the meeting. On February 13, Dr. Kamman spoke at a meeting of the Cerro Gordo County Medical Society in Mason City, Iowa. His subject there was "Psychotherapy and Psychosomatics."

* * *

On February 1 it was announced that **Dr. Wallace E. Anderson,** Clearbrook, would maintain an office in the Clearwater Clinic at Bagley, starting immediately. It was stated that he would be at the clinic on week-day mornings.

* * *

Dr. Grant L. Griebie left Norwood on February 5 for service in the Army Medical Corps. Beginning service with the rank of captain, he left for Fort Lewis, Washington, where he expected to be stationed at Madigan General Hospital. Dr. Griebie moved to Norwood from Brownton in April, 1949, and was associated in practice with Dr. J. D. Selmo in the Norwood Clinic.

* * *

In the face of a critical shortage of nurses, the **American Nursing Association** has announced that about 40 per cent of registered nurses are not working at the profession and that there are 20 per cent fewer students enrolled in nursing schools than at the end of the war.

In all, there are 506,000 registered nurses—205,000 not practicing, although 87 per cent of these are married. About 100,000 students were enrolled in nursing schools in 1950, against 127,000 at the end of the war. The ANA, AMA and the Army are cooperating in a campaign to get older nurses who have retired to go back into practice, releasing the younger nurses for military duty. The Army needs 3,000 nurses by June.

* * *

The number of physicians in rural areas might be increased by accepting more medical students from such areas, **Dr. Harold S. Diehl,** dean of medical sciences at the University of Minnesota, suggested at a meeting in Chicago on February 12. Speaking at the forty-seventh annual Congress on Medical Education and Licensure, Dr. Diehl said that a survey of graduates of the University of Minnesota Medical School showed that the chances of a student brought up in a community of less than 5,000 returning to such an area are 2½ times as great as a metropolitan student going to the country.

(Continued on Page 266)

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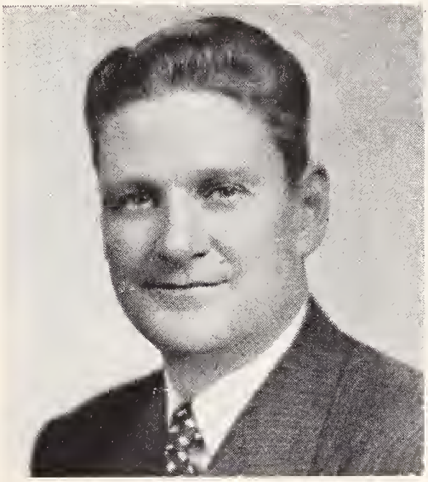

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(Continued from Page 264)

Dr. Mentor H. Christensen and Miss Laura Mae Carpenter, of Minneapolis, were married in the Fort Snelling chapel on January 27. Dr. Christensen, formerly on the staff of the Minneapolis Veterans Hospital, has been recalled into service with the Air Force.

* * *

The Mineral Springs Sanatorium Commission announced on February 16 the appointment of **Dr. Ezra V. Bridge** as medical director and superintendent of Mineral Springs Sanatorium at Cannon Falls. He succeeds Dr. Karl H. Pfuetze as head of the sanatorium.

Dr. Bridge is a graduate of the Cornell University Medical College and has had extensive training in tuberculosis work. Before his appointment at Mineral Springs Sanatorium he was supervising tuberculosis physician at the J. N. Adam Memorial Hospital, Perrysburg, New York.

* * *

Principal speaker at a meeting of the Twin City Society of Medical Technologists in Saint Paul on January 10 was **Dr. John Rukavina,** who spoke on "Sickle Cell Anemia."

* * *

Dr. David A. Boyd, member of the section on neurology and psychiatry of the Mayo Clinic, Rochester, was a speaker on the program of the fifth annual Michigan Postgraduate Clinical Institute, held in Detroit on March 14, 15 and 16. Dr. Boyd spoke on "The Psychological Language of the Organs."

* * *

The newest member of the Minnesota Poll advisory board is **Dr. J. F. Norman,** Crookston, president of the Minnesota State Medical Association. Made up of twenty leading Minnesotans, the board is consulted by the Poll staff on issues to be studied in statewide public opinion surveys. The Minnesota Poll is conducted by the *Minneapolis Tribune* as a public service.

* * *

It was announced late in February that **Dr. F. H. Dickson,** of Proctor, planned to leave on March 15 by plane for a month's trip to Europe. His plans called for spending several days in England studying their socialized medicine arrangements, in preparation for writing and giving lectures upon his return home. He also planned to attend special medical clinics in London and Paris.

* * *

Dr. Edward Dyer Anderson, Minneapolis, was named a new director of the Minnesota Mental Hygiene Society on February 20. His term as a director extends until 1954.

* * *

The newly constructed Kerkhoven Health Center was opened for use on January 2. Occupied by **Dr. B. C. Ostling** and a dentist, the building was con-

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structed by residents of the area to provide office space for local doctors. A corporation was formed by the people in the area, stock was sold, and erection of the building began last summer. Offices in the structure are rented by the corporation to make the building completely self-sustaining.

* * *

Dr. D. E. Affeldt was appointed village health officer at the annual meeting of the Kasson village council on January 2.

* * *

Dr. G. M. A. Fortier, of Little Falls, is head of the 1951 Easter Seal campaign in Morrison County.

After serving for thirteen years as Winona County physician, **Dr. C. P. Robbins,** Winona, notified the county board on January 2 that he would not be a candidate for the post in 1951. He stated that he would be unable to continue as county physician due to ill health.

* * *

Dr. William A. Coventry, Duluth, was honored for outstanding service to St. Mary's Hospital in Duluth at the annual meeting of the hospital's medical staff on February 1. He was presented with an engraved scroll expressing appreciation for his work. It was the second time in the hospital's history that such an award had been given. In 1947, Dr. E. L. Tuohy was the recipient of a similar award.

* * *

Dr. and Mrs. L. A. Dwinnell, formerly of Fergus Falls, have moved to Rochester, where Dr. Dwinnell has begun a three-year fellowship at the Mayo Clinic.

* * *

A University of Minnesota graduate, **Dr. Harold M. Graning,** has been appointed regional medical director of the public health service for Minnesota, Illinois, Indiana and Wisconsin. The appointment was the first step in a program to strengthen the regional setup of public health staffs. Dr. Graning, who was graduated from the University of Minnesota Medical School in 1937, has been with the public health service since 1938.

* * *

Dr. Willard C. Peterson, Minneapolis, discussed the everyday life of a physician at a meeting of the Macalester College Premedical and Dental Club in Saint Paul on February 13.

* * *

Among those in attendance at a continuation course in geriatrics at the University of Minnesota on January 4, 5 and 6 was **Dr. Hugh D. Patterson** of Slayton.

* * *

Early in January, **Dr. J. M. Cook** of Staples was appointed deputy coroner for Todd County by **Dr. A. J. Lenarz** of Browerville, who was elected coroner at the general election in November.

* * *

Dr. T. R. Fritsche, New Ulm, has been appointed medical officer on the state guard staff of General Russell B. Rathbun, Minneapolis. With the new appointment Dr. Fritsche became head of the medical staff of the units in all cities in which the new Minnesota State Guard is being organized.

* * *

Dr. Frederick A. Figi, consultant in the section on laryngology, oral and plastic surgery at the Mayo Clinic, Rochester, participated in a panel discussion on neck surgery and in a cancer symposium at the sectional meeting of the American College of Surgeons in St. Louis on January 22.

* * *

Dr. George D. Haggard, said to be Minnesota's oldest practicing physician, celebrated his ninety-fifth birthday in Minneapolis on January 18.

* * *

The resignation of **Dr. L. H. Flancher** as superintendent of the Sand Beach Sanatorium at Lake Park was accepted by the Clay-Becker county boards and the sanatorium commission on January 17. Dr. Flancher left on February 1 to become head of Sunnyrest Sanatorium at Crookston. He had been superintendent at the Sand Beach institution since 1925, except for eight years between 1941 and 1949 when

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he headed the tuberculosis department of the Iowa State Health Department.

* * *

Dr. Gerald N. Hofmann, staff member of the Mineral Springs Sanatorium, conducted a Mantoux testing clinic in Red Wing on February 5.

* * *

The first mental health clinic for children in Minneapolis was officially opened on February 9. The clinic, the **Washburn Memorial Clinic** at St. Barnabas Hospital, is believed to be the only one in the country sponsored jointly by a private hospital and a state university. **Dr. Harold B. Hanson,** director, was formerly director of the Minneapolis Board of Education's child study department.

Minnesota children up to sixteen years of age will be treated at the clinic on referral from other physicians. The clinic's staff will be supervised by faculty members of the University of Minnesota Medical School.

* * *

Dr. Thomas Page Anderson of the Mayo Foundation, has been appointed director of the Department of Physical Medicine at the new Medical Health Center at Ohio State University. Dr. Anderson has been a fellow in physical medicine at Rochester since January, 1948.

Dr. C. A. Rohrer of Waterville suffered a broken arm when another car collided with his on a highway near Morristown on January 26. Three other persons were also injured in the accident.

* * *

Word was received early in February that **Dr. John R. Utne,** formerly of Northfield, was in Korea with the First Cavalry Division of the Eighth Army. Dr. Utne was called into service in November, 1950.

* * *

Elmore lost one of its two physicians early in January when **Dr. Harry Shragg** left to begin work at the Minneapolis Veterans Hospital. Remaining in Elmore is Dr. Troy Rollins.

* * *

Dr. Philip S. Hench and **Dr. Edward C. Kendall,** Nobel Prize winners, were guests of honor at a formal reception held by the board of governors of the Mayo Clinic and the Mayo Foundation in Rochester on January 12. On display at the reception were the medals and diplomas presented the two winners by the Nobel Prize committee.

* * *

Dr. Charles W. Vandersluis, Bemidji, resigned as county coroner on January 3 after officially holding the position for only two days. The county board then appointed **Dr. Bernard S. Nauth,** Bemidji, to replace him. Backing Dr. Nauth's appointment, Dr. Vandersluis stated that he had resigned because of the press of duties from his practice and his position as city health officer. "The main reason I ran for the office," he said, "was because I am of the firm conviction that the office of county coroner is one for a doctor and not for an undertaker."

* * *

Dr. Leonard A. Lang, Minneapolis, was the principal speaker at a meeting of the St. Thomas College Aesculapian Club in Saint Paul on January 17.

* * *

Holiday Home at Lake Geneva, Wisconsin, will be open to eighty diabetic children, aged eight through fourteen, from June 25 to July 16. The camping period is sponsored by the **Chicago Diabetes Association.**

The need for such a camp in the Midwest was apparent in 1949 when Holiday Home provided the facilities to care for the younger diabetics and give them the advantage of summer camping. The contributions of such experience to the development of a normal child are obvious. A schedule of the usual camping activities is maintained under supervision of a trained medical, dietary, nursing and counseling staff. Included are swimming, handicrafts, nature study, boating, tennis and other pursuits which encourage the child in the direction of a normal balanced life. Association with other diabetics in this program gives the camper a feeling of group security difficult to achieve in the home.

Detailed medical analysis of the 1950 camping season, general information and applications are available on request. Inquiries should be sent to the Chicago Diabetes Association, Inc., 950 East 59th Street, Chicago 37, Illinois.

* * *

Dr. Ralph Wenzel, Blue Earth, announced early in January that he was moving to Columbus, Georgia, to start a private practice. Dr. Wenzel began practice in Blue Earth in 1948, in association with Dr. George Drexler, with whom he formed the Blue Earth Medical Center.

* * *

It was announced on February 7 that **Dr. Edward C. Kendall,** head of the Mayo Clinic's biochemistry laboratory and one of the winners of the 1950 Nobel Prize in medicine, will retire from the Mayo Foundation on May 1. It was stated that his future plans were indefinite but that he did not plan to cease working.

* * *

Dr. James J. Warner, of Perham, and Miss Mary Margaret Larson were married on February 6 at St. George's Episcopal Church in Minneapolis. They planned to spend their honeymoon in Hawaii.

* * *

Dr. A. H. Benson, formerly of Washington, D. C., announced on January 24 that he had taken over the practice of **Dr. R. V. Fait** in Little Falls. Dr. Fait, who has practiced in Little Falls since 1936, is moving to California to set up a practice.

A graduate of Loyola University, Dr. Benson practiced in northern Michigan for five years. For

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Surgical Anatomy and Clinical Surgery, two weeks, starting March 19, April 16, May 14.
Surgery of the Colon and Rectum, one week, starting April 9, May 14.
Basic Principles in General Surgery, two weeks, starting April 2.
Fractures and Traumatic Surgery, two weeks, starting June 18.
GYNECOLOGY—Intensive Course, two weeks, starting March 19, April 16.
Vaginal Approach to Pelvic Surgery, one week, starting April 2, May 7.
OBSTETRICS—Intensive Course, two weeks, starting April 2, June 4.
MEDICINE—Intensive General Course, two weeks, starting April 23.
Gastroenterology, two weeks, starting May 14.
Gastroscopy, two weeks, starting May 14.
Electrocardiography and Heart Disease, two weeks, starting March 19.
PEDIATRICS—Intensive Course, two weeks, starting April 2.
Congenital and Acquired Heart Disease in Children, two weeks, starting May 7.
Cerebral Palsy, two weeks, starting July 9.
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* * *

Dr. C. A. McKinlay, Minneapolis, showed color pictures of his recent trip to Europe at a meeting of the Hamline-Asbury Nurse Alumnae Association in Minneapolis on February 5. While in Europe, Dr. McKinley attended the annual congress of the International Cardiological Society in Paris.

* * *

Dr. L. E. Steiner, Albert Lea, was appointed deputy coroner of Freeborn County on January 3. Coroner for the county is **Dr. S. G. Egge.**

* * *

Dr. Wallace C. Hill moved from Pequot Lakes on January 12. Dr. Hill now has a fellowship in surgery at the University of Michigan at Ann Arbor, Michigan.

* * *

On December 29 **Dr. F. Donald Bucher** moved his offices into a newly constructed clinic building in Starbuck. The one-story, 30- by 50-foot building also houses a dental suite in addition to Dr. Bucher's offices.

* * *

Dr. R. S. Ylvisaker, Minneapolis, was re-elected president of the **Minneapolis War Memorial Blood Bank** at the annual meeting of the board on January 18. Other officers include **Dr. Nathaniel H. Lufkin, Dr. Thomas Lowry** and **Dr. Mancel T. Mitchell,** vice presidents.

At the meeting **Dr. G. Albin Matson,** director of the blood bank, reported that 11,827 units of blood were drawn from donors during the 1950 fiscal year. During the previous year the bank drew 8,823 units.

* * *

A diabetic survey began in Hibbing schools on January 29. Tests were run in school laboratories, with five teams of ten students each doing the work. The teams of high school and junior college students were supervised by **Dr. Rufus Johnston,** school health officer, and **Dr. Robert Murray,** township health officer. Plans called for testing about 4,500 students and school employes. A similar survey was completed for the adult population of Hibbing last year.

* * *

Dr. John B. Evensta, formerly of Minneapolis, has become associated in practice with Dr. Gordon M. Erskine and Dr. Clarence R. Ferrell of Grand Rapids. Dr. Evensta is specializing in surgery.

* * *

Dr. Kenneth W. Covey, Mahnomen, was named "Young Man of the Year" by the Mahnomen Junior Chamber of Commerce at their annual banquet on January 15. The award was presented to Dr. Covey because of his numerous contributions to civic and community life and his continued interest in the all-around progress of the community.

* * *

Dr. Dexter E. Guernsey, formerly of Minneapolis, has completed a fellowship in surgery at the Mayo

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* * *

Dr. A. D. Hoidale, who retired from active practice in Tracy more than a year ago, resumed his practice on February 15. His return was caused by the shortage of physicians which resulted when two local doctors were called into military service.

It was announced on February 8 that Tracy would acquire another physician early in July. He is **Dr. Malcolm M. Fifield,** who is now completing a two-year fellowship at the Navy Hospital at Bremerton, Washington.

* * *

Dr. S. Marx White, Minneapolis, was presented with the annual distinguished service award of the Community Chest and Council of Hennepin County at its annual meeting in Minneapolis on January 31. Dr. White, who has practiced in Minneapolis for more than fifty years, has an impressive record of service in community health activities. He has been president of the Minnesota State Board of Health, a member of the Hennepin County Sanatorium Commission, a director of the Hennepin County Tuberculosis Association, and president of the Community Chest and Council. He was a member of the University of Minnesota Medical School faculty from 1898 to 1942.

* * *

Dr. Charles W. Mayo, Rochester, has been elected a regent of the University of Minnesota, replacing Mr. A. J. Lobb, business manager of the Mayo Clinic, who resigned in January upon reaching the Mayo Clinic retirement age. Dr. Mayo's election continues a thirty-eight-year-old tradition that has kept a representative of the clinic on the board of regents.

* * *

Dr. and Mrs. E. R. Bray, Saint Paul, left on February 23 for Hot Springs, Virginia, where Dr. Bray attended a meeting of the American College of Surgeons.

* * *

The fiftieth anniversary of the Minnesota chapter of **Alpha Epsilon Iota,** national medical sorority, was celebrated in Saint Paul on February 21. Chairman of arrangements for the anniversary was Dr. Catherine Corson West of Minneapolis.

* * *

The Triumph-Monterey Community Hospital received a gift of equipment early in February from **Dr. Robert C. Farrish** of Sherburn. The equipment included an emergency table, instrument cabinet and instruments. Construction of the new hospital is nearing completion.

* * *

The Austin Clinic announced on February 12 that **Dr. Harold J. Anderson,** formerly of Saint Paul, had joined the clinic staff. A graduate of the University of Minnesota Medical School in 1944, Dr. Anderson served his internship at Minneapolis General Hospital, then entered the Army for two years. Following his return to civilian life, he took specialized

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training in surgery at Minneapolis General and the University of Minnesota Hospitals. His practice in Austin will be limited to surgery.

* * *

Among the speakers on the program of the **Hennepin County Health Day** in Minneapolis on January 26 were Dr. Tague C. Chisholm, Minneapolis pediatric surgeon; Dr. C. Knight Aldrich, professor of psychiatry at the University of Minnesota, and Dr. Edward L. Tuohy of Duluth.

* * *

On February 14 **Dr. A. E. Sohmer** of Mankato retired from active practice. A graduate of Brooklyn's Long Island College in 1899, Dr. Sohmer practiced in Buffalo, New York, until 1910, when he moved to Mankato. For five years he was a general practitioner in Mankato, and in 1916 he began to specialize in general and urological surgery.

Dr. Sohmer is a past president of the Blue Earth County Medical Society and the Southern Minnesota Medical Society, and a former vice president of the Minnesota State Medical Association.

* * *

A bronze plaque honoring **Dr. M. S. Henderson,** a retired staff member of the Mayo Clinic, was installed in St. Mary's Hospital, Rochester, early in January. The plaque honored Dr. Henderson for his work in organizing the hospital's orthopedic section.

* * *

Dr. Karl S. Klicka became the new medical director of St. Barnabas Hospital, Minneapolis, January 1, 1951. Dr. Klicka is a graduate of Western Reserve University medical school, Cleveland, Ohio, and took advanced training in hospital administration at the University of Chicago. He has been director of Woman's Hospital, New York, since his discharge from the Army in 1945.

* * *

Dr. E. J. Lillihei was elected chief-of-staff at St. Barnabas on February 7. Chosen as vice chief-of-staff was **Dr. Robert J. Tenner;** as secretary-treasurer, **Dr. Edgar A. Webb.** At the same time the appointment of Clarence N. Hardenbergh as chairman of the St. Barnabas board of directors was announced. Mr. Hardenbergh succeeds Charles Bolles Rogers as chairman.

BLUE CROSS—BLUE SHIELD NEWS

Payments to physicians for subscriber medical service by Blue Shield in 1951 were more than ten times as much as those of 1948, and twice those of 1949. In 1950 these payments amounted to $2,249,032; in 1949, $1,156,231; and in 1948, $169,269. The 1950 payments represented 58,568 claims for 70,893 services including all ancillary services.

For December 1950 alone, payments totalled $265,637.79 for 7,528 claims. This represents an increase of $63,788.16 over November. These payments covered 5,501 hospitalized cases, 1971 cases of care in the doctor's office or clinic, and 56 cases in which care was rendered in the patient's home. Subscribers with incomes over $2,000 or $3,000 annually, if single or married respectively, received the benefits in 5,499 claims, and 2029 claims of subscribers with incomes less than those mentioned were paid.

As a result of the sharp increase in the number of claims filed with and processed by Blue Shield, it has been found necessary to analyze the age of claims as filed. For instance, of the 7,528 claims processed in December, only 1,258 were for services in December, whereas 3,180 were for November services and 1,652 for October. Of those remaining 177 were over six months old and of these 20 were over a year old.

Delay in filing and paying claims is due to a variety of factors. From the administrative viewpoint, Medical Service Reports often do not contain enough information to evaluate and pay the claim; evidence that preexistence of the condition may invalidate the claim makes it necessary to secure previous medical history from both doctor and subscriber; and in some instances the subscriber fails to advise the doctor that he has a Blue Shield policy for several months after the service is provided. Since the doctor's office is the liaison between the patient and Blue Shield, in many cases the only means of personal contact, Blue Shield relies on this contact to assist wherever possible in seeing that claims are properly submitted.

The professional relations subject is not one which is under consideration only by Minnesota Blue Shield. From February 1 to 3, 1951 approximately 200 representatives of Blue Cross and Blue Shield plans throughout the nation attended a Blue Cross-Blue Shield Hospital and Physician Relations Conference, captioned "Prescription for Profitable Professional Relations." The general discussions and panel meetings centered about ways and means by which better professional relations could serve to improve the workings of both Blue Cross and Blue Shield. Questions pertaining to diagnostic studies, hospital admittances, home and office calls and the avoidance of the overuse of hospital ancillary services were the chief topics. There was also discussion about the desirability or advisability of forming an organization of medical directors of Blue Shield and Blue Cross which might possibly serve on an advisory basis to the Blue Cross-Blue Shield Commission. Suggestions made for better professional relations included the effective use of plaques in the doctor's office and possibly the hospital waiting rooms, improved means for assisting the patient to identify his Blue Cross-Blue Shield eligibility, and the use of stickers on hospital charts to prevent overstay.

SOCIALIZED MEDICINE CALLED ALIEN BLIGHT

(Continued from Page 248)

has an honored profession encountered such a difficult situation."

The list of barriers blocking the way in medicine's fight includes:

". . . the bureaucracy became its chief exponent. Since then, volumes of 'official' and inspired propaganda have been issued, mainly at public expense.

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"In the Department of Justice the antitrust laws have been distorted to persecute ethical medical societies.

"The whole weight of the federal government and the inexhaustible finances of the federal treasury, have been misused to destroy the freedom of medical practice and to put medical science under political control."

The newspaper called all these things "unscionable oppression," and applauded the medical profession for leading the opposition against them:

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BOOK REVIEWS

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PRACTICAL GYNECOLOGY. *Walter J. Reich,* M.D., F.A.C.S., F.I.C.S., Attending Gynecologist, Cook County Hospital; Professor of Gynecology, Cook County Graduate School of Medicine; Attending Gynecologist, Fantus Clinics of the Cook County Hospital; Assistant Professor of Gynecology, Chicago Medical School; Attending Gynecologist and Obstetrician, Grant Hospital; Attending Gynecologist, Fox River Tuberculosis Sanatorium; Consulting Gynecologist, Hazelcrest General Hospital; and *Mitchell J. Nechtow,* M.D.; Associate Attending Gynecologist, Cook County Hospital and the Fantus Gynecologic Clinic; Assistant Clinical Professor of Gynecology, Cook County Graduate School; Associate in Gynecology and Obstetrics, Chicago Medical School; Attending Gynecologist and Obstetrician, Norwegian-American Hospital. 449 Pages Illus. Price $10.00 Philadelphia: J. B. Lippincott, 1950.

"Practical Gynecology" was formulated from the authors' experiences in conducting classes at the Cook County Graduate School of Medicine and in the gynecologic out-patient clinics at the Cook County Hospital. The book was written to fulfill the needs of the general practitioner as a handy aid toward establishing a diagnosis, and utilizing practical procedures suitable to the office management of medical and minor surgical diseases in gynecology. The book is not concerned with major operative gynecological procedures, and if such information is desired one is referred to standard textbooks pertinent to the subject being discussed.

Busy practicing physicians are likely to hurry patients along, and in gynecology, as well as in all fields of medicine, a careful history and thorough physical examination are so essential at arriving at a proper diagnosis that one should take time to listen to patients. A timely remark by the authors which impressed me was that the patient "talks her story in her own words" and "we have made it a habit to be good listeners."

There are seventeen chapters: Psychosomatics of Gynecology, Practical Approach to a Gynecological Diagnosis, Biopsy and the Early Detection of Cancer, Laboratory Findings in Gynecology, Reproductive Endocrinology, Menstruation, Disturbances of Menstrual Function, Anomalies and Malposition of the Female Genitalia, Inflammatory Lesions, Infection, Traumatic Lesions, Neoplasms, Common Gynecological Complaints, Genital Fistulas, Technics and Apparatus, Low Fertility and Sterility, Premarital Examination and Counsel.

Comments regarding the material contained in the above chapters is not warranted, because the material contained therein is discussed in a fundamental, practical and useful manner. There are several sections in the book which are exceptionally worth-while. Drs. Reich and Nechtow, in the section on Psychosomatic Approach to Sexual Problems, have offered simple approaches to the solution of very personal problems. The last chapter on Premarital Examination and Counsel is one which

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adds to the value of the book for its intended purpose.

Anyone practicing office gynecology, general practitioner or gynecologist, should read the paragraphs pertaining to vaginal pessaries—indications and method of application.

The title "Practical Gynecology" describes the book in the simplest of terms. It should be valuable to any physician who treats gynecological patients.

J. F. Melanco, M.D.

PROGRESS IN GYNECOLOGY. Volume II. Edited by Joe V. Meigs, M.D., Clinical Professor of Gynecology, Harvard Medical School; Chief of Staff of the Vincent Memorial Hospital, the Gynecological Service of the Massachusetts General Hospital; Surgeon, Pondville Hospital; Gynecologist, Palmer Memorial Hospital, and Somers H. Sturgis, M.D., Clinical Associate in Gynecology, Harvard Medical School; Assistant Surgeon, Massachusetts General Hospital, Boston, Massachusetts. 821 Pages. Price, $9.50. New York, Grune & Stratton, 1950.

In this volume, the editors, Joe Vincent Meigs, and Somer H. Sturgis, again as in Volume I, have asked contributors to write on specific subjects and have received an excellent response. In addition to their own contributions, they obtained material from scores of others and always from those who excel or are interested in one particular phase. In other words, they asked men to write on their hobbies and therefore the masterfully selected and arranged chapters could be termed a "Parade of Hobbies." And what a parade it is! The chapters are carefully arranged and also overlap in certain cases to cover a subject from different viewpoints. This is not repetition, but a very helpful way to impress and drive home points. The volume again is primarily intended for those limiting their field of practice and for residents, but much man be gleaned from it by general practitioners or those wishing to refresh their knowledge.

The book opens with an excellent chapter on Embryology as a setting, and then proceeds in Physiology, Diagnostic Methods, Functional Disorders, and a very understandable chapter on the Inter-relationship on Endocrine Glands. It then deals with a very interesting and hard problem of Sterility, Infections of the Genital Tract, Treatment of Benign and Malignant Growths, and the newer operative techniques for various difficult conditions. It closes with pre-operative and postoperative care. When the book is thoroughly perused, one gets a very clear and up-to-date refreshing on confronting problems. It is an excellent volume and indispensable to anyone interested in gynecology or wishing to be well posted on gynecological problems.

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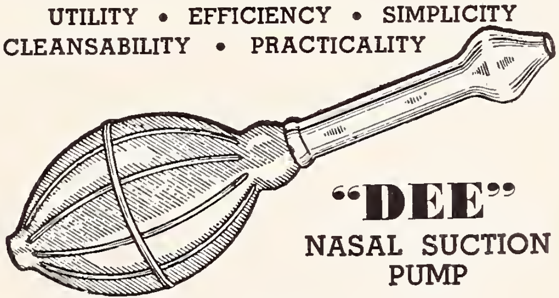

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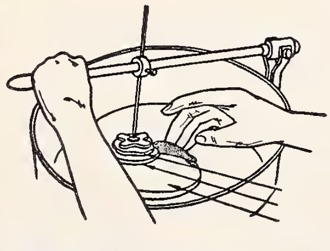

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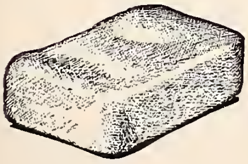

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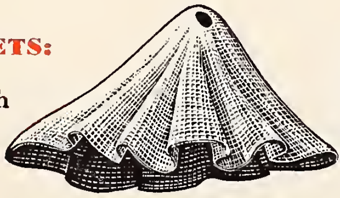

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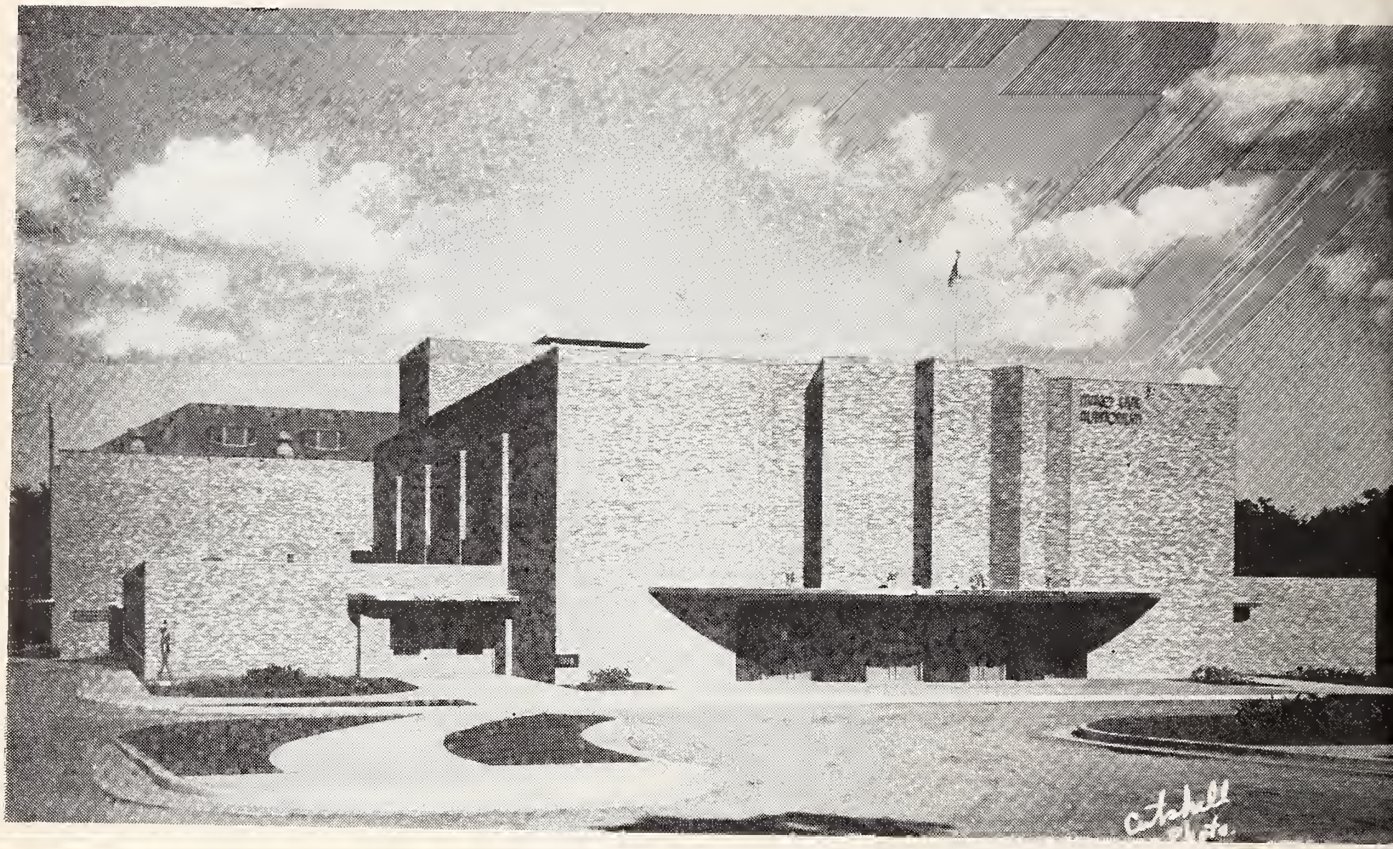

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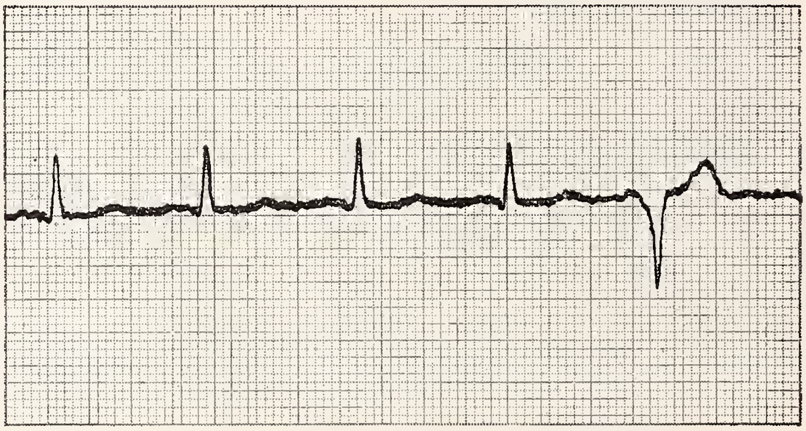
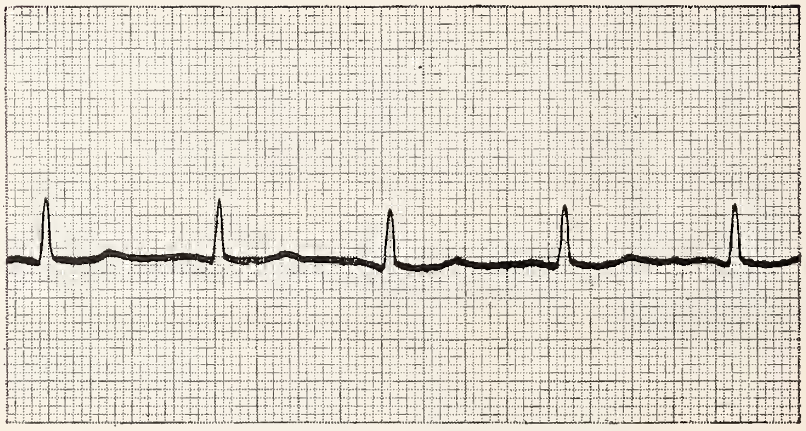


Lead I. Control tracing, ventricular premature contraction.



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Orally: 1 Gm. (4 capsules) followed by 0.5-1.0 Gm. (2 to 4 capsules) every four to six hours as indicated.

Intravenously: 200-1000 mg. (2 to 10 cc.). *Caution*—administer no more than 200 mg. (2 cc.) per minute.

Hypotension may occur during intravenous use in conscious patients. As a precautionary measure, administer at a rate no greater than 200 mg. (2 cc.) per minute to a total of no more than 1 Gm. Electrocardiographic tracings should be made during injection so that injection may be discontinued when tachycardia is interrupted. Blood pressure recordings should be made frequently during injection. *If marked hypotension occurs, rate of injection should be slowed or stopped.*

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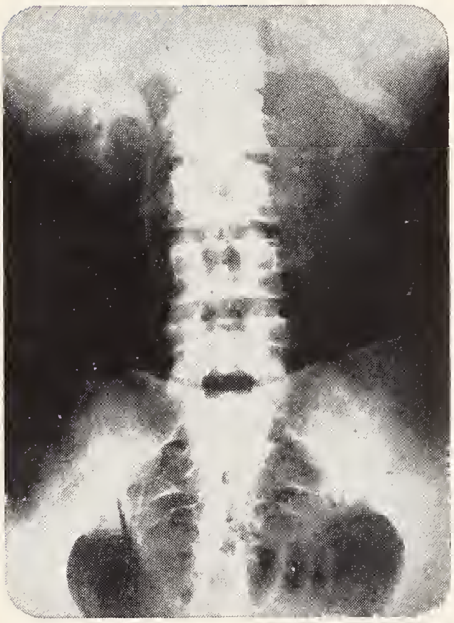

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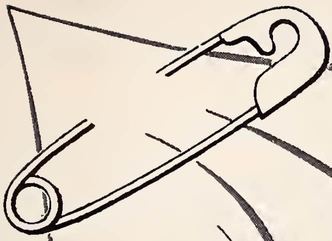

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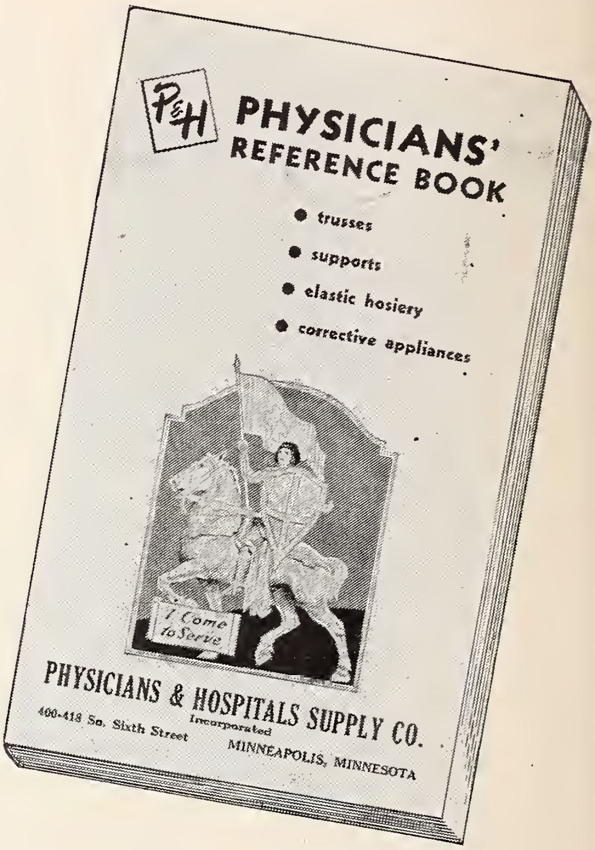
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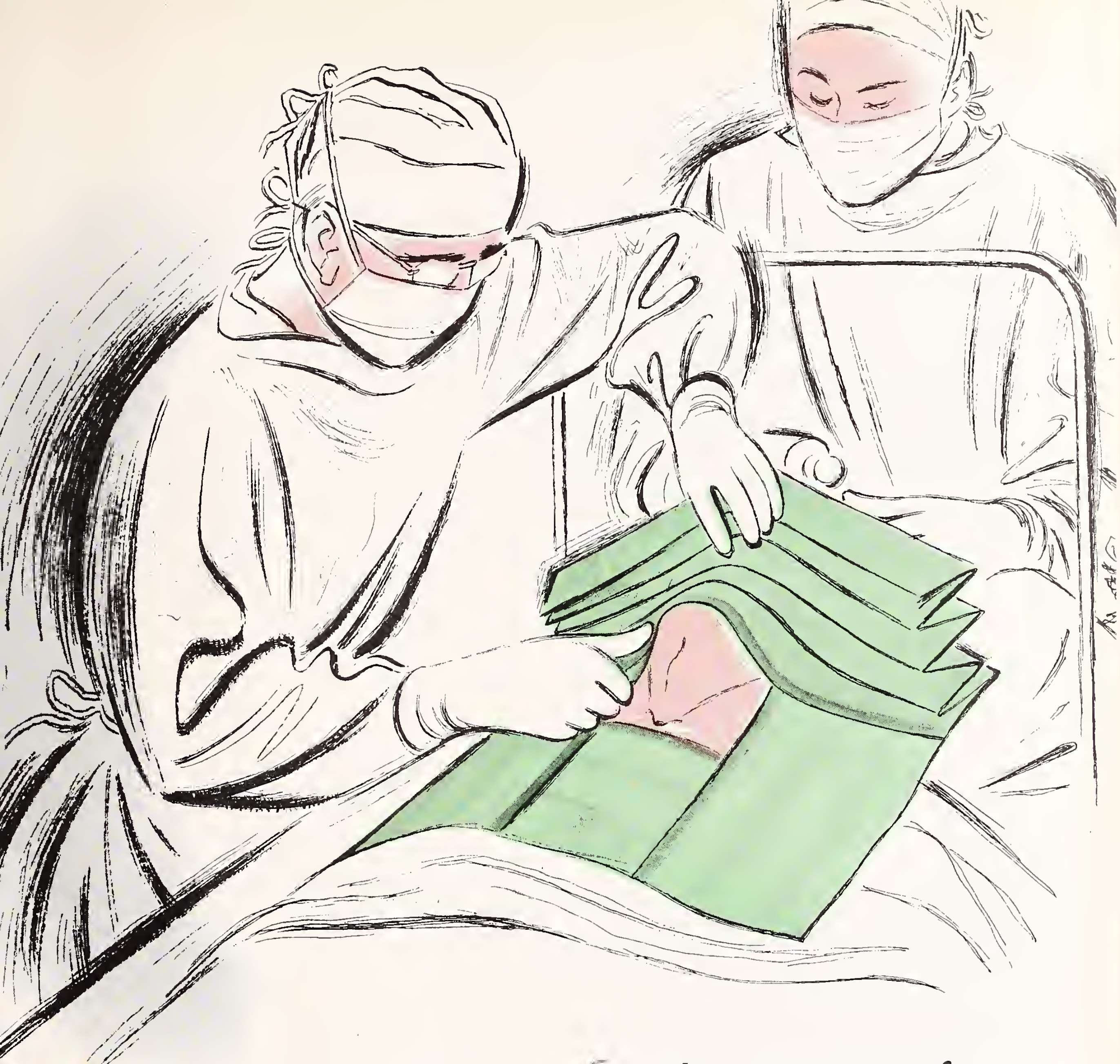

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Made of a thin plastic sheeting with a border of special adhesive; adhere to the skin on contact. Maintain a fixed sterile field. Form an impermeable barrier against contamination. Give surgeon an unencumbered working area. Give no wound edge irritation. Are quickly applied to the most difficult areas.

. . . are less irritating

Extensive pharmacological studies over a period of years have shown that the new adhesive developed for use on "SCOTCH" Brand Surgical Drapes as well as the plastic film used give considerably less skin irritation than any surgical tape tested. Clinical trials showed no evidence of wound edge irritation.

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FOUR TYPES . . .

for **all** operative techniques

1. Towel Drapes measure 8″ x 16″ with a strip of adhesive along one side.
2. Treatment Drapes are 14½″ x 16″ with a 2½″ circular opening in the center. Adhesive surrounds opening.
3. Eye Drapes are 32″ x 50″—large enough to cover patient's head. Each has a 3″ x 2″ adhesive bordered opening.
4. Perineal Drapes are 16″ x 25½″ with strip of adhesive on one end.

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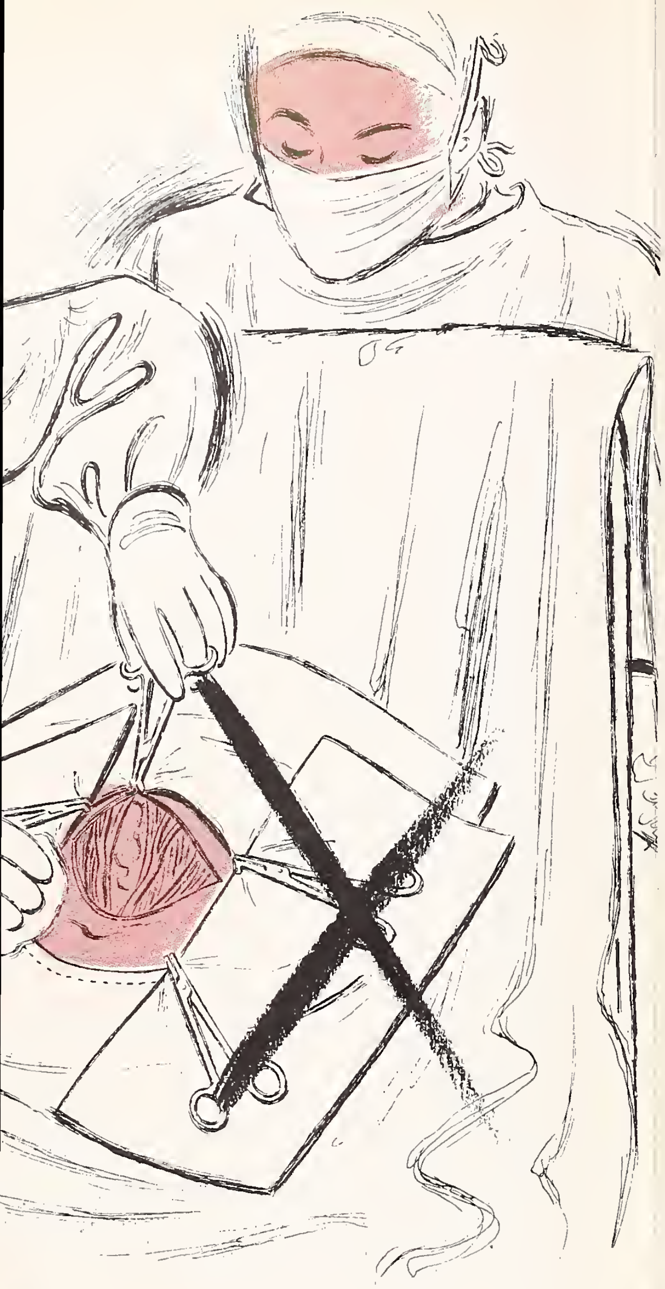

eliminates towel clips,
towel sutures,
towel bulkiness

Conventional Drapes

Insecurely held in place • Easily contaminated • Must be laundered and sterilized • Require towel clips or suturing—a source of discomfort to patient and possible source of secondary infection • Frequently restrict surgeon's movements • Not available without sterilization facilities and trained personnel • Extremely difficult to apply on irregular areas.

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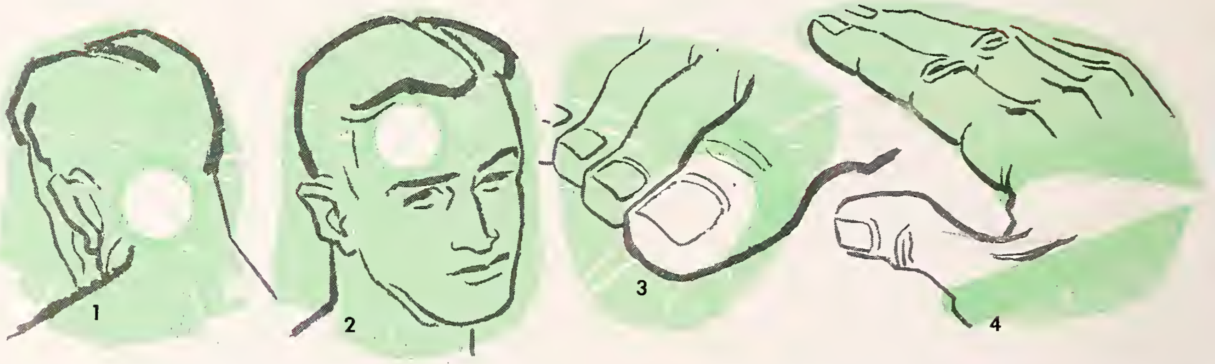
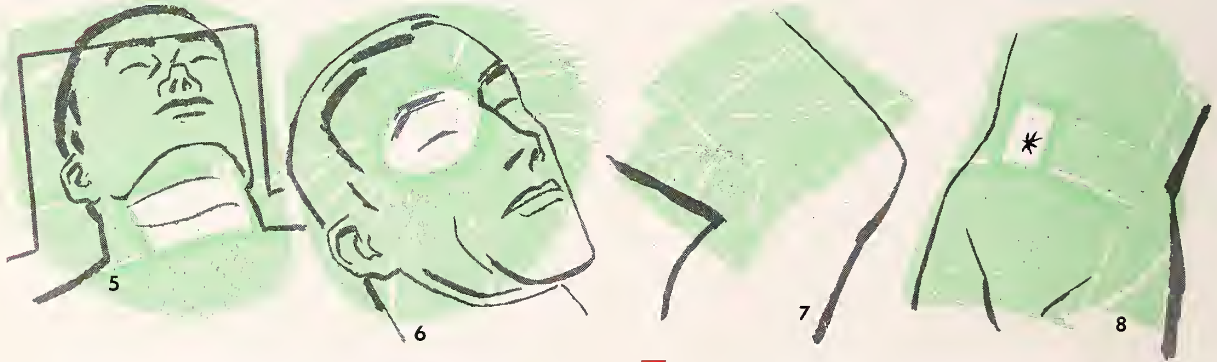
in difficult-to-drape areas



1. Treatment Drape is an aid in removal of boils, wens, moles. Helps prevent infection.
2. Treatment Drape isolates operative site for repair of lacerations.
3. Toes and other extremities are effectively draped with Treatment Drape. Positive asepsis is maintained.
4. Towel Drapes may be used to demarcate a site of almost any angular shape. Difficult areas may be draped effectively.

ALSO FOR: Any emergency surgery or treatment where sterilization facilities are not available, such as in accident cases or home deliveries.



5. Three Towel Drapes and one Perineal Drape are employed in draping for thyroidectomy.
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7. "SCOTCH" Surgical Drapes may be folded over wounds as moisture-proof dressings.
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ORGANISM	NO. OF CASES	RESULTS		
		GOOD*	EQUIVOCAL	POOR
No organic or obstructive disease				
B. coli	15	14	1	0
A. aerogenes	4	4	0	0
Aerobic diphtheroids	3	2	1	0
S. albus	2	2	0	0
Aerobic non-hemolytic streptococcus	2	2	0	0
Ps. aeruginosa	1	0	1	0
With organic or obstructive disease				
Ps. aeruginosa	3	1	0	2
P. vulgaris	1	0	1	0
A. aerogenes	1	1	0	0
TOTALS	32	26	4	2

Douglas, R. G.; Ball, T. L., and Davis, I. F.: California Med. 73:463 (Dec.) 1950

*"*A good result was recorded when in 72 hours or less the temperature fell to normal, the pyuria cleared, a negative culture was obtained and the patient was symptom-free.*"

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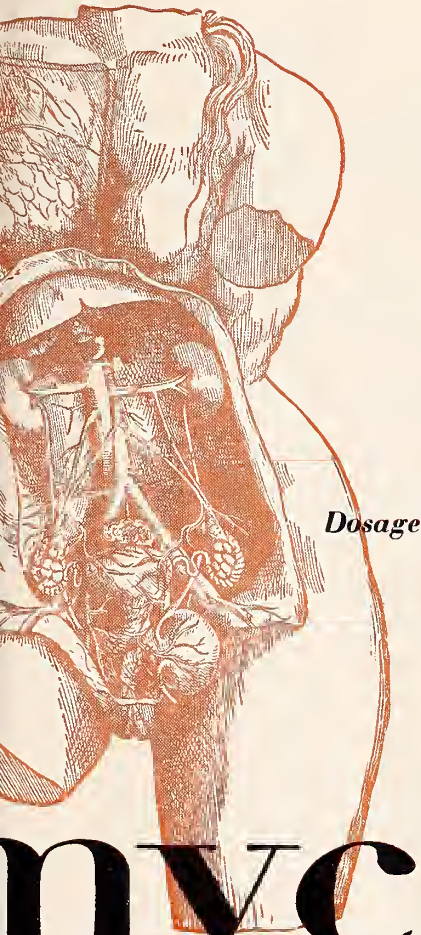

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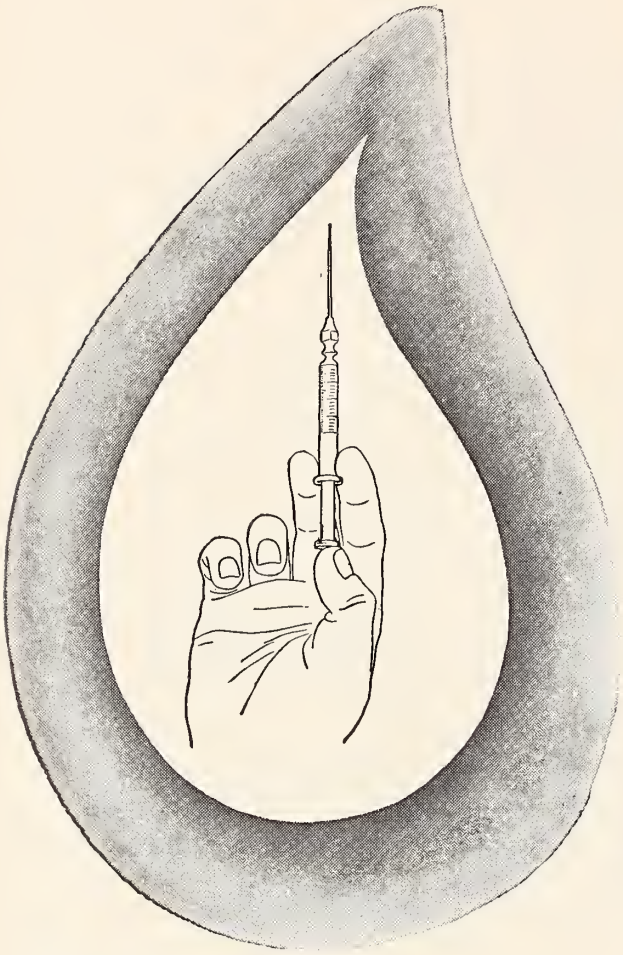

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Extensive experimental studies [6, 9, 16-18]
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BIBLIOGRAPHY
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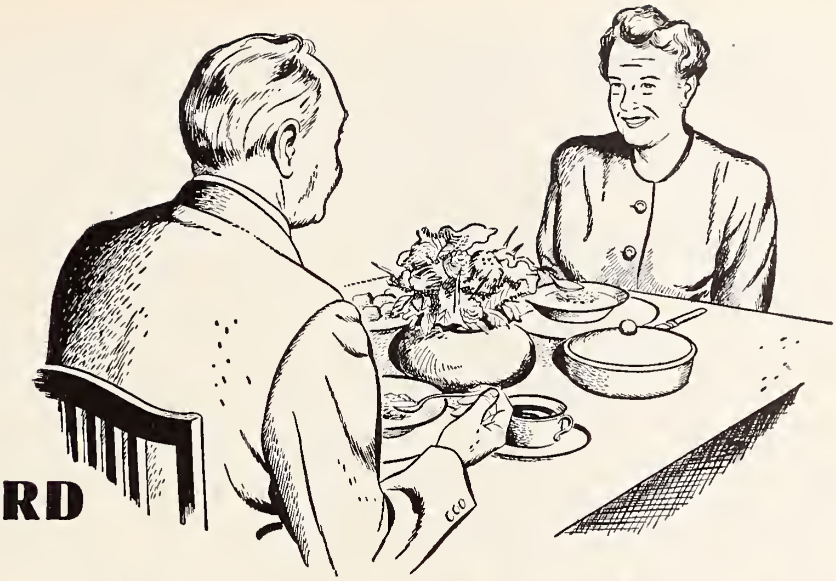

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[1] Thewlis, M., and Gale, E. T.: Ambulatory Care of the Aged, Geriatrics, 5:331 (Nov.-Dec.) 1950.

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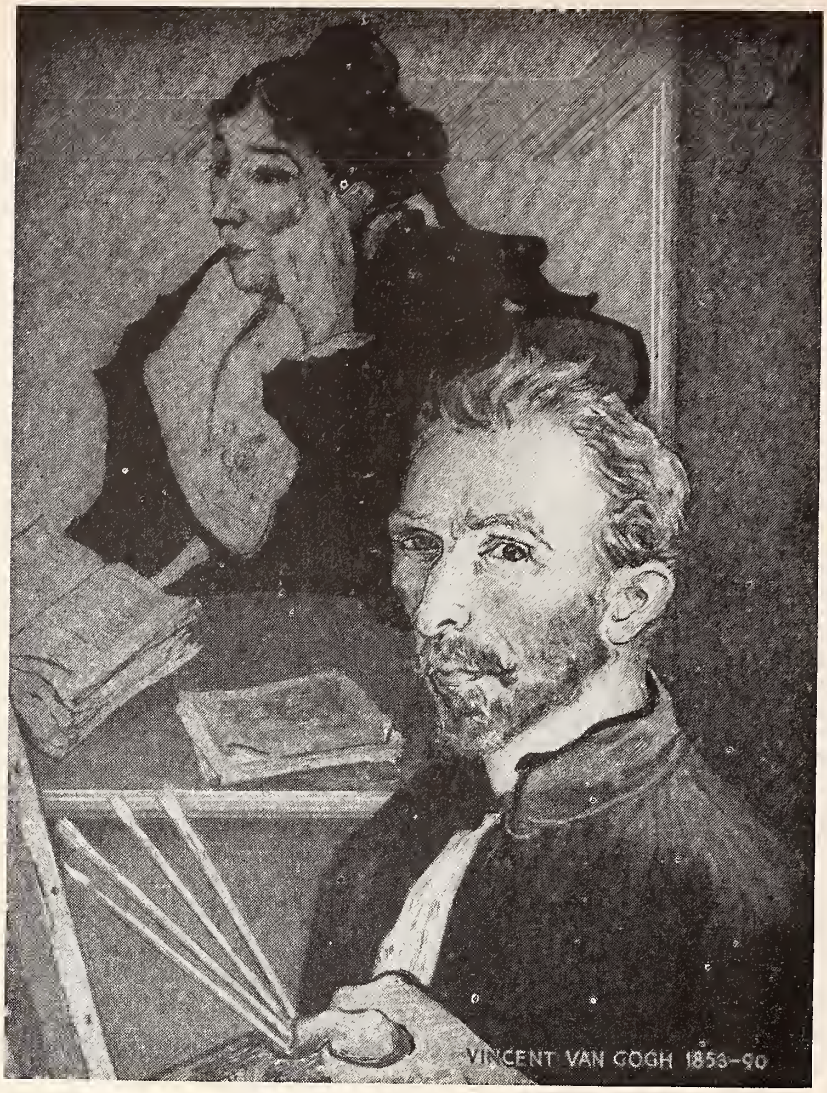

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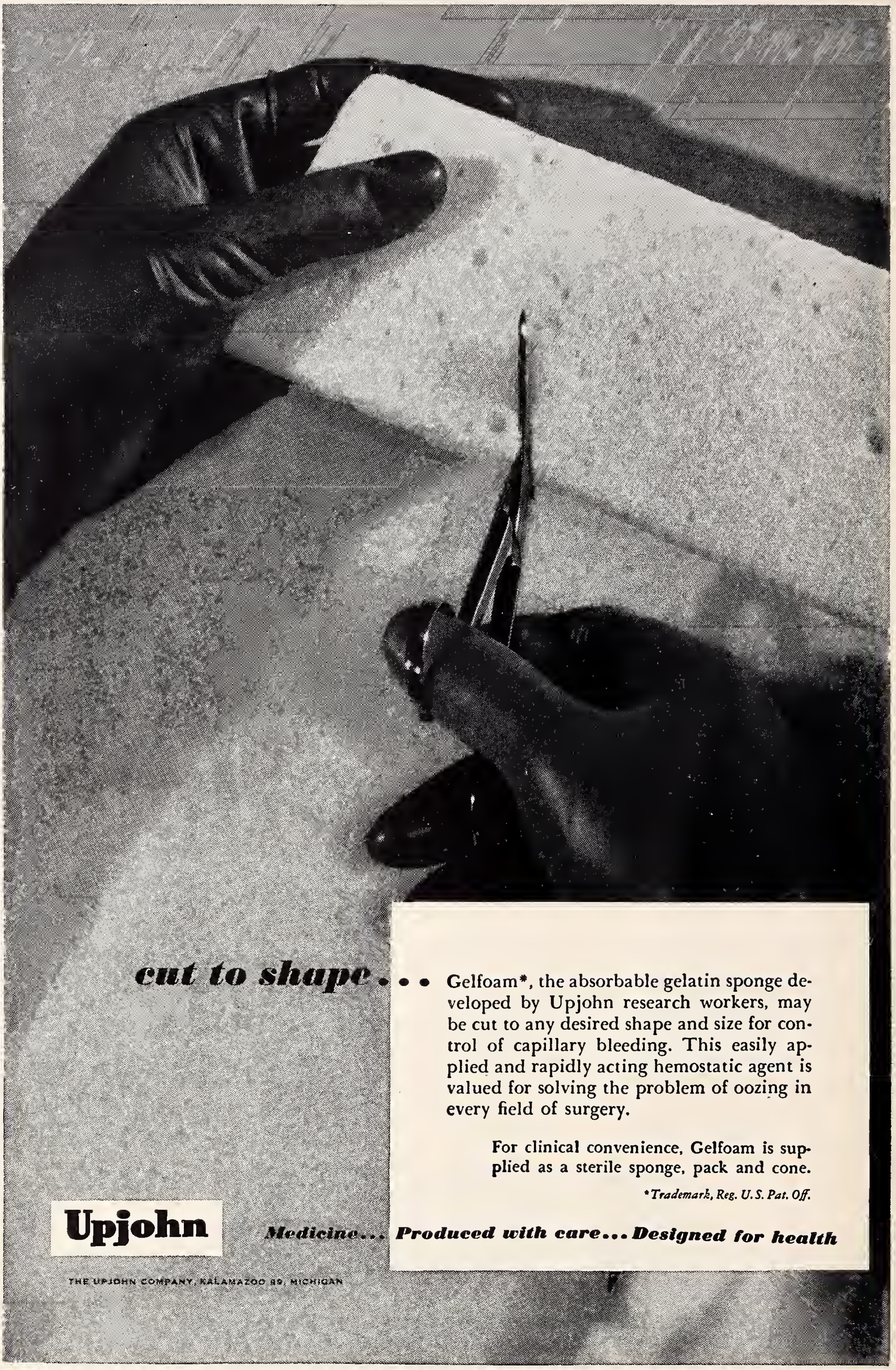

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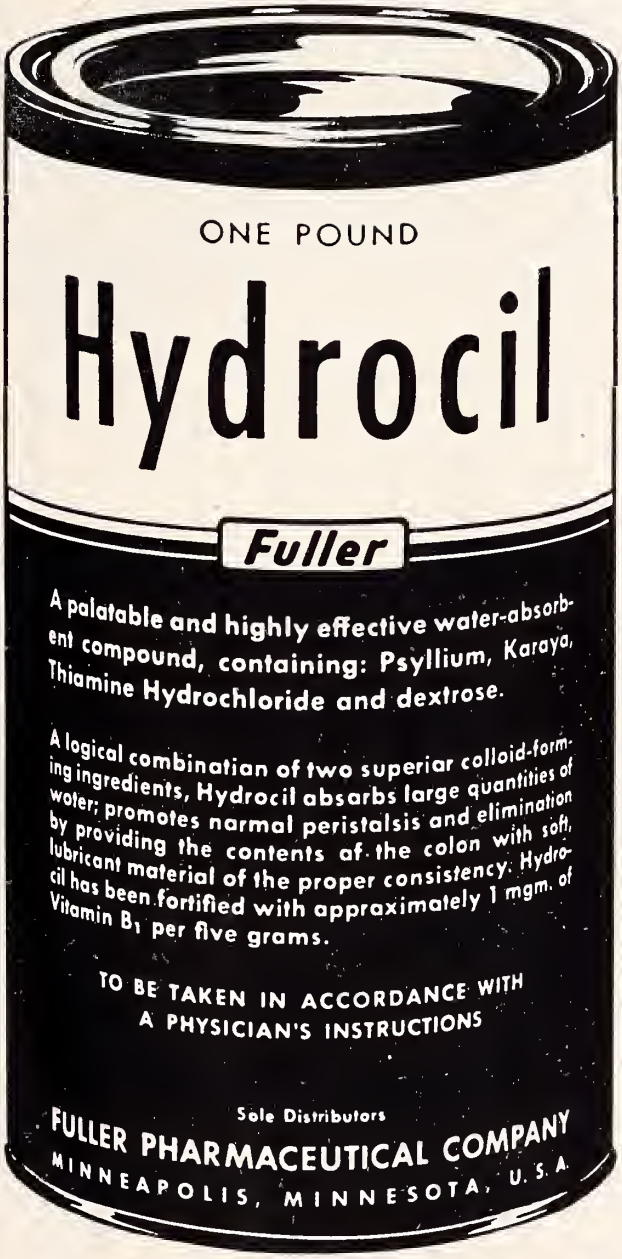
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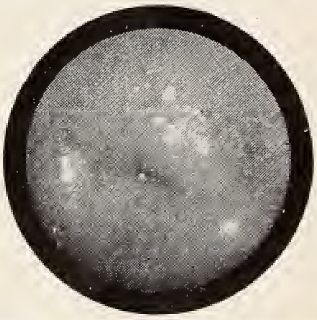

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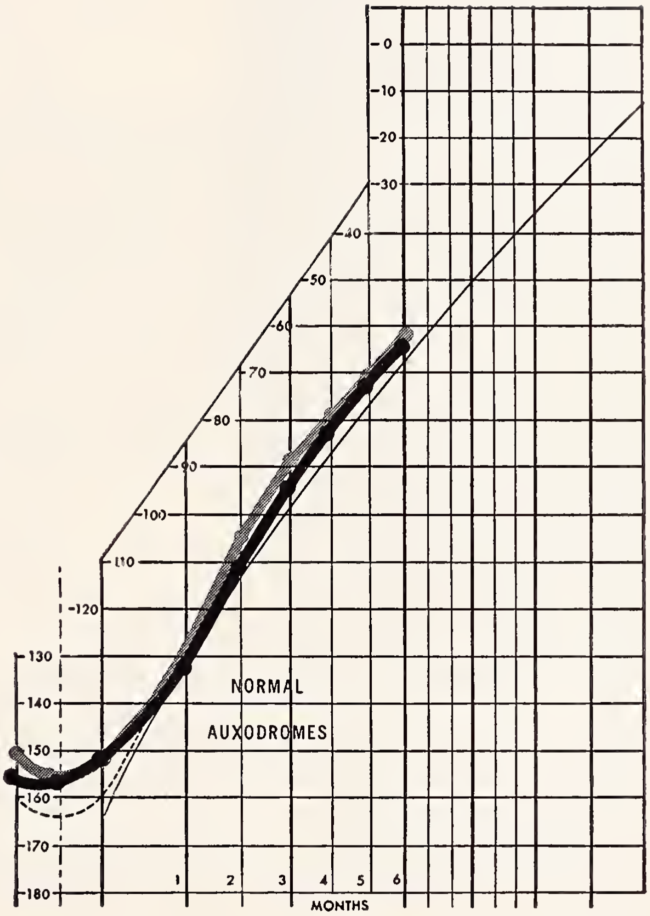
Normal schedule of development (auxodrome) plotted on Wetzel Grid.[1]

CURVE A

Composite Wetzel Grid auxodrome of 60 unselected infants on S-M-A from birth to 6 months of age.

CURVE B

Growth data, recomputed on Wetzel Grid, based on "selected subjects, most of whom were favored by environment;"[2] age: from birth to 6 months.



1. Wetzel, N. C.: J. Pediat. *29*:439, 1946.
2. Jackson, R. L., and Kelly, H. G.: J. Pediat. *27*:215, 1945.

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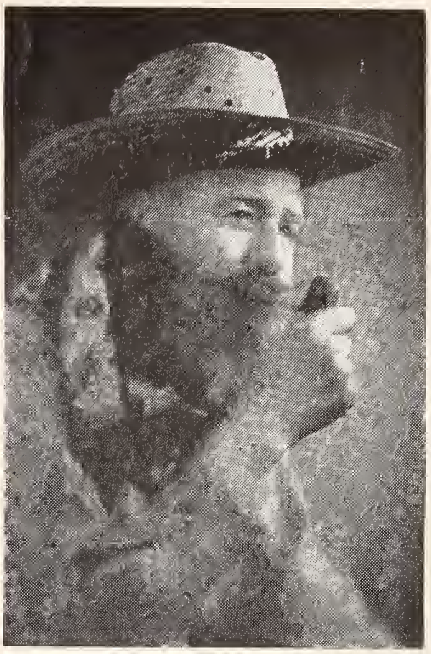

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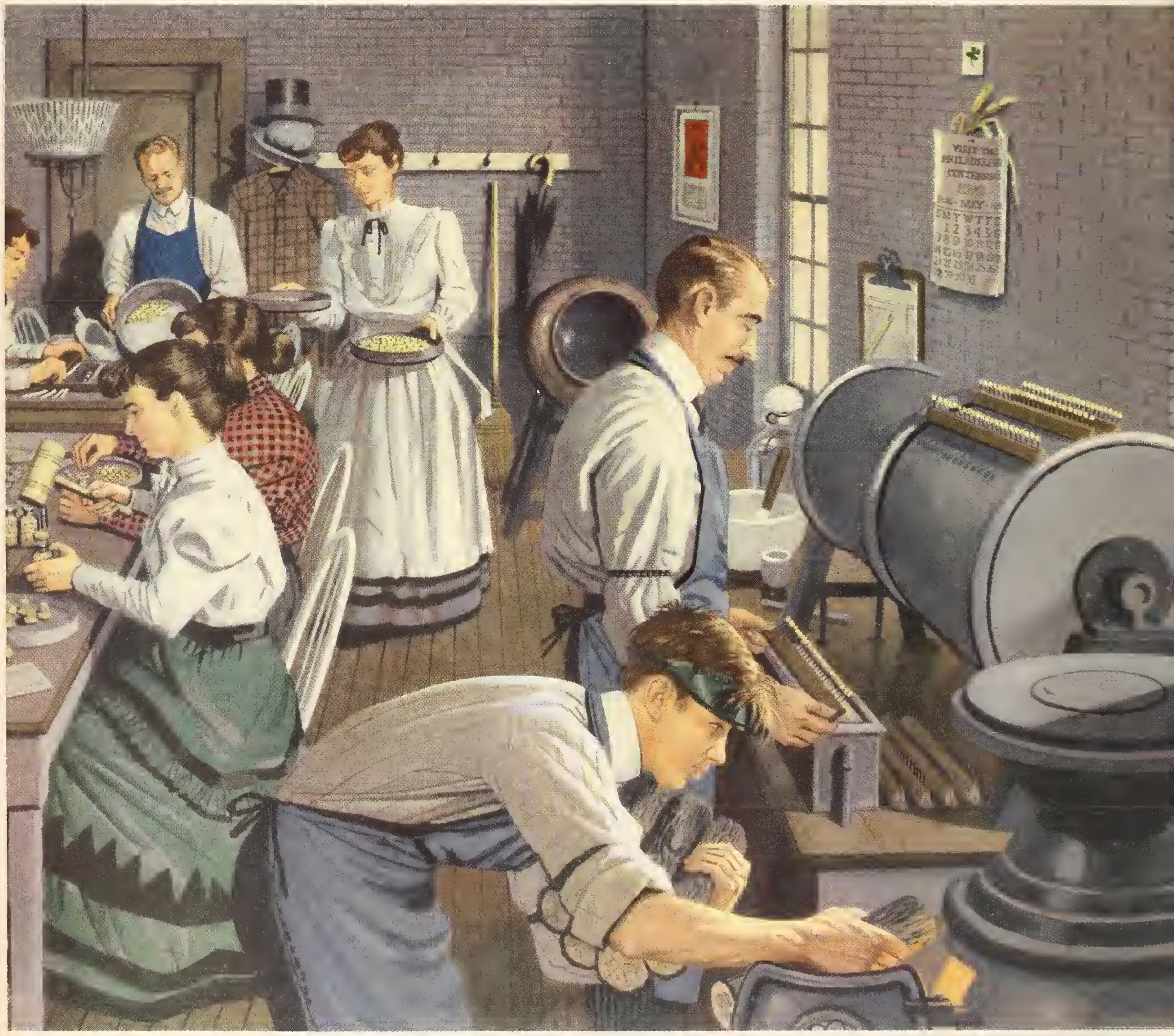

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Minnesota Medicine

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

Volume 34 April, 1951 Number 4

PATHOLOGY OF IONIZING RADIATION

BRIG. GENERAL ELBERT DE COURSEY, MC, USA
Washington, D. C.

THE DETONATION of an atomic bomb produces rays that cover the entire length of the spectrum. The intensity of the thermal radiation was so great in Nagasaki that there were flash burns on such diverse substances as wood, oranges, tile, and textiles. Thin objects such as leaves, blades of grass, and clothing acted as filters, offering protection in their shadows. This circumstance influenced the distribution and severity of burns sustained by the inhabitants of this city.

Ionizing radiation, the agent which makes the atomic bomb unique among all other weapons, also contributed to the morbidity and mortality among the population. Thousands of persons received radiation, but because of varying distances from the source and shielding of all different kinds, the amount varied from minimal to several times the lethal dose. The radiation was immediate and lasted for only a very few minutes.

The content of this paper represents the work of many investigators, American and Japanese. Tissues from those who died from the effects of atomic bombing before late September, 1945, were collected by the Japanese before we arrived. Many physicians in the Armed Forces participated in the collection of clinical material, and pathologic investigation was carried out by Dr. Liebow of Yale at Hiroshima and Captain Shields Warren and me, Navy and Army, who worked together at Nagasaki.[1] Most of the gross descriptions of early cases are the work of Japanese pathologists, but preserved organs and tissues for histologic studies were available to us. We performed autopsies after our arrival.

In reviewing what is known of the effects of radiation on the systems of the body the relationship of lesions to time of death must be considered. In patients dying during the first two weeks after exposure, there is histologic evidence of radiation effects in the bone marrow, gonads, gastrointestinal tract, and skin, which, however, are not manifested clinically. In the groups dying from the third to sixth weeks, bone marrow changes predominate and neutropenic ulcerations and hemorrhagic symptoms are spectacular. General nutrition declines. Gross changes are at about their peak. In those dying in the third and fourth months, beginning recovery in bone marrow and regeneration of hair are apparent, but testicular and connective tissue changes persist. There is increased emaciation. Malnutrition, however, is not based entirely on shortages of food; intestinal lesions and other factors are largely responsible.

Bone Marrow

The cellular picture of irradiated bone marrow is tremendously changed during the first week after the bomb explosion. There is almost total depletion of blood-forming elements, with the exception of small islands of erythropoiesis. By the end of the week reticulum begins to proliferate and at first differentiates into lymphocytes and plasma cells rather than myeloid cells. These forms predominate until the fourth week when myeloid differentiation is seen. The bone marrow of most of those dying before six weeks is hypoplastic; but in a few, islands of hyperplasia with arrest of maturation are observed. Most of the fatal cases of the third and fourth months show hyperplasia, which in the femur is grossly evident as pink marrow extending through a third or half of the shaft; in these the maturation defect decreases and more neutrophils are found in the peripheral blood and in infected tissues. In a few of the cases of longer duration, however, aplasia is prominent, with the marrow of the femur pink and gelatinous. Some marrows which grossly appear hyperplastic are really hypoplastic, the pink color coming from dilated blood vessels. Whatever the marrow picture, there is usually profound leukopenia at some time in fatal cases.

Lymph Nodes

The high degree of sensitivity of lymphoid tissue to ionizing radiation results in tremendous atrophy seen as early as the third day. Lymphocytes almost disappear, leaving a lacy framework that is spectacular in microscopic preparations. Necrobiosis may account for changes in the germinal centers, but departure from the normal architecture is marked only when the germinal centers disappear as they did in three-fourths of those who died during the first two weeks. The gross appearance of human lymph nodes very soon after the blast is not known, but in bombed animals the nodes are somewhat enlarged, soft, and pale in color. The large atypical mononuclear cells which appear by the second week have been considered lymphoblasts by one observer, but could logically be pathologic forms whose sensitive nuclear chromatin was deformed by the radiation. The lymph nodes from Japanese patients dying about the fifth week are usually large and almost devoid of lymphocytes and germinal centers. Bizarre large cells are more numerous. Plasma cells, eosinophils, mast cells, and increased numbers of reticulum cells are present. In the fourth month lymphocytes are more numerous but are still reduced.

Spleen

The lymphoid elements in the spleen react to radiation as do those in the nodes. Early, the spleen is usually small, but an occasional one reacts very promptly by swelling. On section it is dark red and pulp adheres to the knife; the follicles are indistinct and the trabeculae are somewhat prominent. In addition to the near absence of lymphocytes, large mononuclears are increased and there are erythrophagocytosis and hemosiderin deposits. During the second month the spleen is small and organized follicles are absent. A syncytial reticulum seems to surround the regenerating follicles in which the slight lymphocytic content of the organ is obvious. Atypical large mononuclears are found in about 25 per cent of the material examined. Through the fourth month there is still moderate atrophy; occasional germinal centers appear and the lymphocytic content shows some evidence of recovery.

Secondary Effects of Radiation on Reticulo-Endothelial Descendants

Hemorrhagic lesions and leukopenic necrosis represent the principal effects on the irradiated body about the end of the first month. Leukopenia was extreme in affected Japanese.[2] The pharynx and its connections, the gastrointestinal tract, the respiratory organs and the skin manifest both changes. In addition, petechiae, purpuric patches, or large ecchymoses are seen in other soft tissues, particularly the urinary tract, mesothelial linings, and muscles. These changes are outstanding clinically, and their severity depends on the location of the larger hemorrhagic lesions. Hemorrhages in the linings of the pharyngeal regions, the bowel, or the urinary tract give signs externally. Hemorrhages breaking through epithelium of bacteria-laden surfaces often initiate neutropenic necrotizing lesions, which in the pharynx are similar to the well-known acute agranulocytosis. Ulcers sometimes extend onto the tongue, the gums, buccal membranes, lips, and even the skin, to give the picture of noma. Such ulceration may also be independent of hemorrhage. It is probable that ordinarily nonpathogenic bacteria may cause serious consequences after sufficient reticulo-endothelial reserves are lost. Most ulcerative lesions throughout the stomach and intestinal tract are on a similar basis.

Lungs

Only the slight edema, perivascular or pleural, that appears in the lungs in the first two weeks might be a primary radiation effect. Hemorrhagic and necrotizing pneumonia are common after the first few weeks as secondary lesions, and are probably part of the process which results in ulcerative lesions of the gastrointestinal tract.

Gastrointestinal Tract

This tract is among the first in which lesions are grossly visible. Even before hemorrhagic manifestations, the ileum or cecum, particularly, may present focal changes characterized by swelling, greenish and yellowish-grey coloration, and induration of the mucosa. These foci may become confluent and widespread, with a diphtheritic membranous effect and much submucosal edema. Later, mucosal hemorrhage may initiate another cycle of similiar change in the stomach or intestine, beginning with ulceration of the mucosa at the site of the hemorrhage and progressing to an ulcerative or pseudomembranous process. In the small intestines initially only the tips of the folds may be involved, giving the appearance of having been dipped into boiling water; later, they become greenish or yellowish-grey.

Again in the third and fourth months, enteritis, most often in the large intestine but sometimes affecting also the small intestine or occasionally the stomach, may be the most prominent lesion at autopsy. The large intestine at this stage is usually the seat of a widespread process that may extend from the ileocecal valve to the rectum, the involvement being most prominent in the distal portion. Thickening of the wall is a feature. A diphtheritic membrane and ulceration are sometimes present to give a pathologic picture resembling that of bacillary dysentery. It would seem that the process represents not only changes due to irradiation of the sensitive intestine, but also those resulting from decreased resistance to omnipresent intestinal microörganisms and, probably more important, lowered antibiotic capabilities of the blood.

Microscopically, the epithelium early contains extremely bizarre cells with giant hyperchromatic nuclei and multipolar mitoses. The swelling is seen to be caused by edema, and the peculiar coloration by the absence of infiltrating leukocytes. In the late stages prominent features are areas of mucosal ulceration with much fibrinous exudate, few leukocytes, and in the remarkably edematous submucosa a considerable number of histiocytes, a few lymphocytes, and occasional eosinophils. Plasma cells of the lamina propria remain numerous.

Testes

The testes show intense changes in almost every instance. As early as the fourth day when the parenchyma has a normal appearance grossly, the histologic sections exhibit remarkable evidence of damage to the germinal epithelium, numerous cells of which are necrotic and free in the tubules, some having been carried into the rete testis. The number of mitoses is small. Sertoli cells begin to increase in number. Mature spermatozoa are found even in later specimens where spermatogenesis has ceased. Apparently uninjured spermatozoa appear in the seminal vesicles.

During the second month gross examination reveals little. Histologically, a few necrotic germ cells remain, but most have disappeared, and phagocytic or infiltrating inflammatory cell activity is absent. A few bizarre cells approximating the basal membrane appear to be spermatogonia. Sertoli cells are more numerous. The tubules now begin to shrink, and at this time the interstitial cells of Leydig are so prominent that some interpreters regard them as hyperplastic. The most extreme vascular change in any part of the body is seen in some of the small interstitial vessels; beneath the distinct thin endothelium is an eccentrically located mass of eosinophilic homogeneous refractile material that may almost occlude the lumen. This change, difficult to ascribe to radiation, is often best seen near the tunica albuginea and apparently persists, for it is present in autopsy material from the third and fourth months. At that time the interstitial tissue is somewhat less prominent; the basement membranes are thick, wavy, and acellular; the tubules, now more atrophic, are often hyalinized. Elsewhere Sertoli cells have replaced the germ cells, which have become rare. Before attributing these changes entirely to radiation, one must give consideration to the poor state of nourishment during the third and fourth months. In this connection, similar testicular changes have been described in autopsy material from victims of the Dachau prison camp.

Pituitary

Large basophilic cells with much cytoplasmic vacuolation appeared in the pituitary gland of 25 per cent of the males dying during the third to sixth weeks. Because cells of this type are found in mammals after castration, they are known as "castration cells." In the second and third months large basophils are found, only a few being vacuolated.

Ovaries

Changes in the ovaries are much less striking than in the testes. Gross changes, except as part of the hemorrhagic phenomena, are absent. Histologically, primary ova are usually present, and only occasional specimens have a few atretic primary follicles. Developing follicles are seldom found. A "resting phase" of the endometrium reflects the ovarian picture. Clinical observation in Nagasaki indicated that amenorrhea was definitely increased and that the rate of premature termination of pregnancy among women within a 1500-yard radius of the explosion was significantly higher than normal.

Skin

The quickly visible changes in Japanese exposed to an atomic bomb were the pigmented areas that appeared in the first few weeks and persisted. These had such sharply demarcated outlines that they were considered flash burns. Development of what is usually recognized as ionizing ray skin burn was not seen. In a few early cases there was said to be bullous edema that may have been caused by gamma rays.

Epilation appeared on the scalp, occasionally being more severe on one side than the other. Axillary epilation was an accompaniment in 16 per cent, pubic in 12 per cent, and eyebrow in 8 per cent.

Microscopically, the hair follicles show distinct changes both in the epidermic and dermic coats. Early specimens were not obtained, but in those of the fourth week the internal root sheaths cannot be identified, the external sheath (continuous with the malpighian layer of the epiderm) being continuous with the hair shaft. Vascularity of the papillae is reduced and the adjacent epithelium is atrophic. Pigment is irregularly clumped. Then in the dermic coat, both the inner hyaline membrane and the cellular fibrous layer become thickened. The base of the follicle apparently undergoes continuous shrinkage, pushing the base of the hair toward the surface, until regeneration begins with new cells over the papillae. This process mimics normal hair replacement. There is also atrophy of the sebaceous glands in some cases. Some of the sweat glands are small, their cells occasionally vacuolated and pyknotic, and the basal membranes thickened.

Evidence of radiation effect on the epidermis is not definite. Third degree flash burns could be expected to include some radiation effect, but interpretation is difficult. In patients dying on the fifth day, there is necrosis of vessel walls and thrombosis. Hyperpigmentation in basal cells and chromatophores are common at the edge of burn areas. Some thinning of epidermis, hyperkeratosis, ironing out of papillae, and hyperpigmentation of basal cells are found in the scalp (the most usual specimen). Erythema or pigmentation from ionizing radiation has not been recognized in the Japanese.

Adrenal

During the first two weeks there seems to be a loss of lipoid in the adrenal cortex, but during the next months it progressively loses its orange-yellow color and is distinctly thin. Microscopically, most cells are granular rather than foamy and atrophy is most marked in the outer zona glomerulosa (contrary to what was expected). When foam cells are present, they are usually in the inner layer. The medulla is normal.

Liver

Doctor Ono, Professor of Pathology at Fukuoka, was impressed with the large nuclei of liver cells around the central veins and the congestive edema in that region; however the presence of any irradiation effects is a moot point.

Urinary Tract

Except for hemorrhagic manifestations there are no apparent lesions. In the bladder during the hemorrhagic stage of the radiation disease, mucosal hemorrhages may result in necrotizing ulceration without evidence of leukocytic infiltration. The prostate and seminal vesicles are not remarkable except for a rare neutropenic necrosis and the presence of a few morphologically normal spermatozoa.

Brain

Only secondary hemorrhagic and necrotic changes are found in the brain.

Comment

The effects of the atomic bomb on human beings are on the basis of trauma from flying debris, thermal radiation and ionizing radiation. The ionizing radiation effects of the bomb comprise a small part of the total injuries; the changes produced are widely varied, depending on distance from the explosion and amount and character of shielding.

Clinically and pathologically the patients affected by radiation were easily separated into four

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MEDICAL ASPECTS OF ATOMIC WARFARE

As Related to Civilian Defense

JOSEPH M. RYAN, M.D.
Saint Paul, Minnesota

WITH the sudden and dramatic end of World War II in August, 1945, several new words were added to our everyday vocabulary. The words, "radiation," "radioactivity," "neutron," "fission," et cetera, have cast a spell of fear over us. A fear of the unknown tends to make us hide our heads in the sand and avoid the reality of the true nature of the problem at hand. The problem before us now is to obtain a knowledge of the medical effects of atomic warfare. The term "radiation" has been stressed so much that more important but less fearful effects are neglected. It is important that we know of the blast and burn casualties that can be expected if a community were subjected to the same force expended over Hiroshima and Nagasaki. As physicians, we must be aware of these facts; we must realize that those who are casualties of war need not be hopelessly injured and that we have at hand methods of caring for them. This paper is presented at a time when Civilian Defense is an extremely important problem. No physician should consider himself unimportant in civilian defense because of his location, either rural or urban, for if a large urban community were subjected to atomic bombing, help in caring for its casualties would necessarily be given in part by the doctors of the surrounding areas.

Radiation associated with the explosion of an atomic bomb includes two major types: (a) Thermal and (b) Nuclear. Because of its importance and the large number of casualties resulting from it, we shall consider thermal radiation first. Approximately 95 per cent of all burns were produced by this effect.

Thermal radiation is that which is emitted from hot materials within the exploding bomb. Within 0.1 millisecond after detonation, the ball of fire has a temperature so high that radiation occurs. This consists of ultra-violet, visible, and infra-red radiations when it reaches the earth. Part of these rays are reflected and part are absorbed. The portion that is absorbed is of importance to us. The extent of the amount absorbed depends upon the nature of the matter and its color. Black cloth absorbs much more than that of a lighter color. The absorption may be so great that the material will burst into flames and produce a flame burn to the individual wearing the clothing. It was noted at Hiroshima and Nagasaki that white clothing afforded more protection to "flash" radiation than did darker clothing. The burns produced by this type of radiation caused pigmentation, depigmentation, vesiculation, erythema, and full thickness skin loss, depending upon the distance from point O. Burns were of little significance beyond 3,000 meters. Five per cent of all burns resulted from flame or secondary fires. Here, again, all degrees of burn casualties were found at Hiroshima and Nagasaki.

Nuclear radiation is of less importance, as far as casualties are concerned, than thermal. It is estimated that such casualties made up only 15 to 30 per cent of the total number at Hiroshima and Nagasaki. When an atomic bomb explodes, it emits nuclear radiations consisting of gamma rays, neutrons, beta particles, and a small portion of alpha particles. It is not necessary to discusss the action of these radiations except to say that gamma rays and neutrons have considerable penetrating power and can produce harmful effects on living organisms. Likely, there is little effect from this type of radiation beyond one mile from O.

The medical aspect of nuclear radiation injury and its therapeutics is indeed wanting. We have no specific measures to be carried out, but we know that those who survive the second week have a good chance of recovery. It is in this group that we can do the most good. Antibiotics, blood, plasma, vitamins, electrolytes, "doca," and sedatives are useful in treating patients in this category.

Mechanical injuries resulting from an air-burst atomic bomb were somewhat different from the effect of the conventional bombing of London

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Dr. Ryan is Chairman of the Ramsey County Medical Society Committee on Civilian Defense. He was formerly Chief of Medicine for the Manhattan District at Oak Ridge, Tennessee, 1943-1946.

when one considers the direct blast effect. In London, there was much visceral damage, while in the Japanese cities there was very little or none. Autopsies on the early cases showed no typical blast damage to the lungs. It has been suggested that this difference can be explained by the trip hammer blow produced by the conventional "block buster."

The indirect effect of blast produced tremendous bodily damage. Falling buildings, flying glass and debris caused fractures, contusions, and lacerations. These injuries were the same as we would expect following a tornado, cyclone, earthquake, or any such catastrophe. The treatment would necessarily be the same, as there is nothing characteristic of injuries produced by the indirect blast effect of an atomic bomb.

We should expect to find many individuals who have had severe crushing injuries such as were found in the bombing of London in 1940. The "Crush Syndrome" associated with "Lower Nephron Nephrosis" was prevalent at that time and can be expected to be present in large numbers if an American city were bombed either with a conventional or an atomic bomb. The amount of blood, plasma, and antibiotics that would be required to treat casualties is so tremendous that obtaining these seems an impossible problem. However, in the event this country is bombed in the near or distant future, we must all be prepared to do our utmost in meeting all of the situations mentioned in this paper. We should not let the thought of nuclear radiation hynotize us and thus prevent sensible and rational planning for medical civilian defense. We must anticipate the mechanical and burn injuries and not lose sight of the fact that they constitute by far the greater number of casualties.

Conclusions

1. As physicians, we must take an active part in civilian defense.

2. Nuclear radiation caused only 15 to 30 per cent of the casualties at Hiroshima and Nagasaki.

3. Burns and crushing injuries must have a high priority in planning civilian defense.

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PATHOLOGY OF IONIZING RADIATION

(Continued from Page 316)

distinct categories of disease (very severe, severe, moderate, mild) with close relation between severity and time and incidence of mortality. The outstanding symptoms were nausea and vomiting on the day of the bombing, followed soon by fever, leukopenia, diarrhea, and after two weeks, epilation, purpura, and oropharyngeal lesions.

Summary

The lymphoid and hematopoietic tissues, skin, genital organs, and gastrointestinal tract were most severely affected by ionizing radiation. There was atrophy of lymphoid elements in lymph nodes, tonsils, spleen, and gastrointestinal tract. Atrophy of the bone marrow was evident early, and it either continued or was followed by focal or diffuse hyperplasia with maturation arrest. Necrotizing inflammation of the oropharynx was prominent but limited to the third to sixth weeks. The scalp showed the surest external gross sign of ionization—alopecia, which, with hemorrhagic manifestations, appeared about the same time as the throat lesions.

The testes showed prominent microscopic changes, with almost every sex cell destroyed in all men who died. The ovaries showed very little more than extreme scarcity of proliferating follicles. In all time periods the intestinal mucosa was the seat of changes which varied from ulcerated hemorrhagic foci to focal or widespread necrosis and ulceration with formation of diphtheritic membranes.

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UNUSUAL PYODERMAS (HIDROSADENITIS SUPPURATIVA, ACNE CONGLOBATA, DISSECTING CELLULITIS OF THE SCALP)

A Review

ROBERT R. KIERLAND, M.D.
Rochester, Minnesota

THE three unusual pyodermas under consideration, namely, hidrosadenitis suppurativa, acne conglobata, and dissecting cellulitis of the scalp, have many features in common; in fact, they frequently coexist and because of this merit consideration as a group rather than as single distinct entities.

These pyodermas are uncommon, protracted in their course, produce much discomfort and disability to those afflicted, are resistant to conservative therapeutic measures, produce severe scarring and are of unknown etiology. Men are afflicted more frequently than women, and the age distribution of greatest pyodermic activity is during the active sexual career, that is, the second through the fifth decades of life. In spite of these facts there have been few reports about these conditions since the original and subsequent articles on acne conglobata by Reitmann, Michelson and Allen and Belote; on hidrosadenitis suppurativa by Verneuil, Lane and Brunsting, and on dissecting cellulitis of the scalp by Hoffmann, Wise and Parkhurst and Barney. Nevertheless, the transactions of the various dermatologic societies report a number of these unfortunate cases and stress the difficulty of treatment together with the usual philosophical statements based on lack of knowledge. Unfortunately, I have no greater knowledge of the basic physicochemical factors necessary in the production of these unusual pyodermas. What I shall say then is a composite of opinions from the literature, from informal discussions and from personal experience in the treatment of patients who have these disorders.

Clinical Characteristics

Hidrosadenitis suppurativa is a chronic, indolent, suppurative, inflammatory disease involving the skin, subcutaneous tissues and apocrine glands with sites of predilection for the perianal, genital, inguinal and axillary areas, which in its progress produces abscesses, sinuses and ulceration (Figs. 1 and 2). The primary lesion is a deep-seated, tender nodule which either resolves spontaneously in a matter of weeks or progresses to abscess formation with subsequent drainage (Fig. 1*a*). The suppuration may persist with development of new nodules or extension of the process in the subcutaneous tissues. As a result linear inflammatory cords (Fig. 1*b*), multiple sinus tracts and undermining, burrowing ulcerations may appear (Fig. 1*c*). The disease is subject to remissions and exacerbations and may persist for years. Secondary erysipelas or cellulitis with associated systemic symptoms is not uncommon; otherwise, serious systemic complications are few. Squamous-cell epithelioma rarely develops in regions of infection. Hidrosadenitis oftentimes follows a minor pyococcic infection of the fingers or hand.

Acne conglobata (Fig. 3) is also a chronic indolent inflammatory suppurative disease involving the skin and subcutaneous tissues although the primary inflammatory reaction is about the sebaceous apparatus rather than the apocrine glands and papulopustules result. Comedones are numerous, large, grouped and scattered over the body; the double comedo and comedo scar of Lang and Spitzer are considered characteristic of this condition. The inflammatory reaction begins as a follicular nodule in the center of which may be one or more comedones. The nodule increases in size, becomes purulent and later is covered by a crust underneath which is a deep ulcer. As peripheral extension proceeds, healing may appear centrally. As healing and activity go on together fusion of two or more plaques may result in a large serpiginous plaque characterized by infection, abscesses, communicating channels and sinuses, comedo scars and scarring. This condition may be found on the trunk, buttocks, thighs and arms. It is seen in conjunction with the other two unusual diseases of the skin under discussion and also acne keloid.

Dissecting cellulitis of the scalp, as its name implies, is confined to the scalp (Fig. 4), rarely

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From the Section on Dermatology and Syphilology, Mayo Clinic, Rochester, Minnesota.

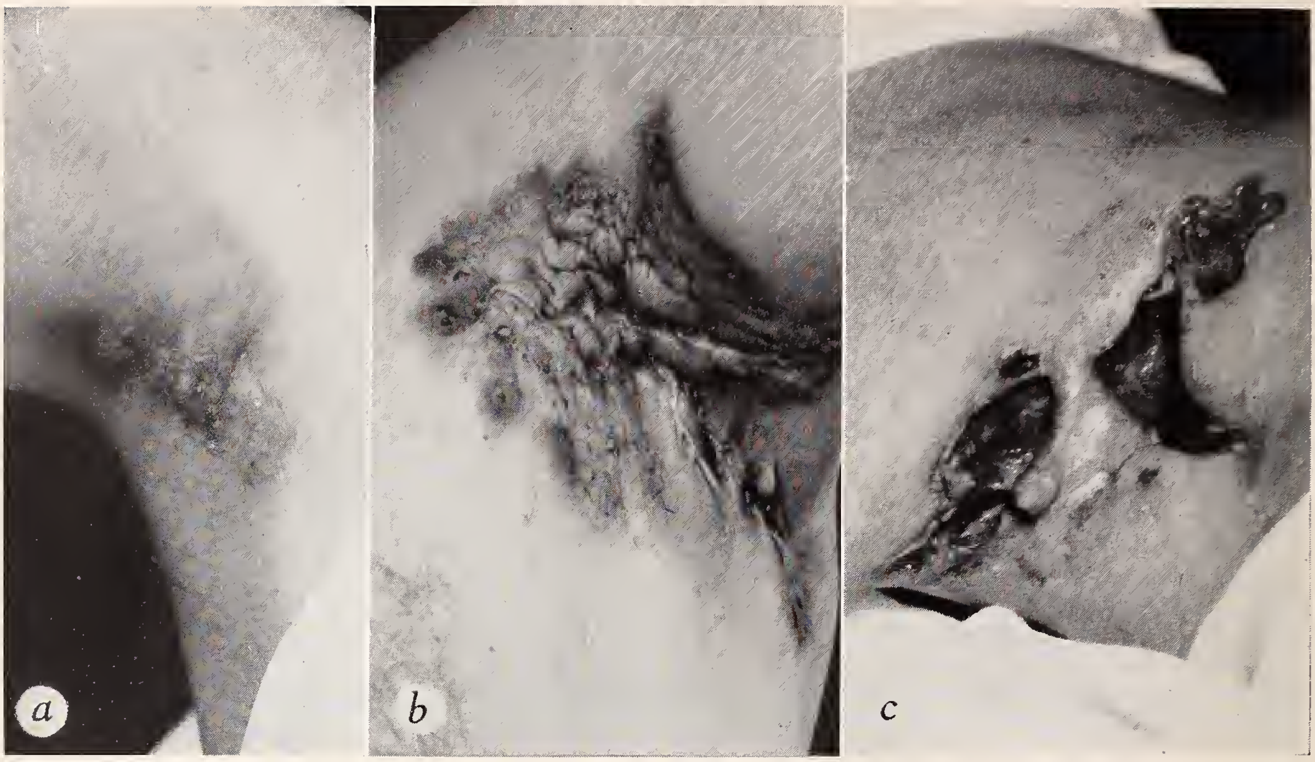

Fig. 1. Hidrosadenitis suppurativa: *(a)* early phase; *(b)* later phase with corded linear lesions and scarring; *(c)* late phase exhibiting extensive undermining ulceration.

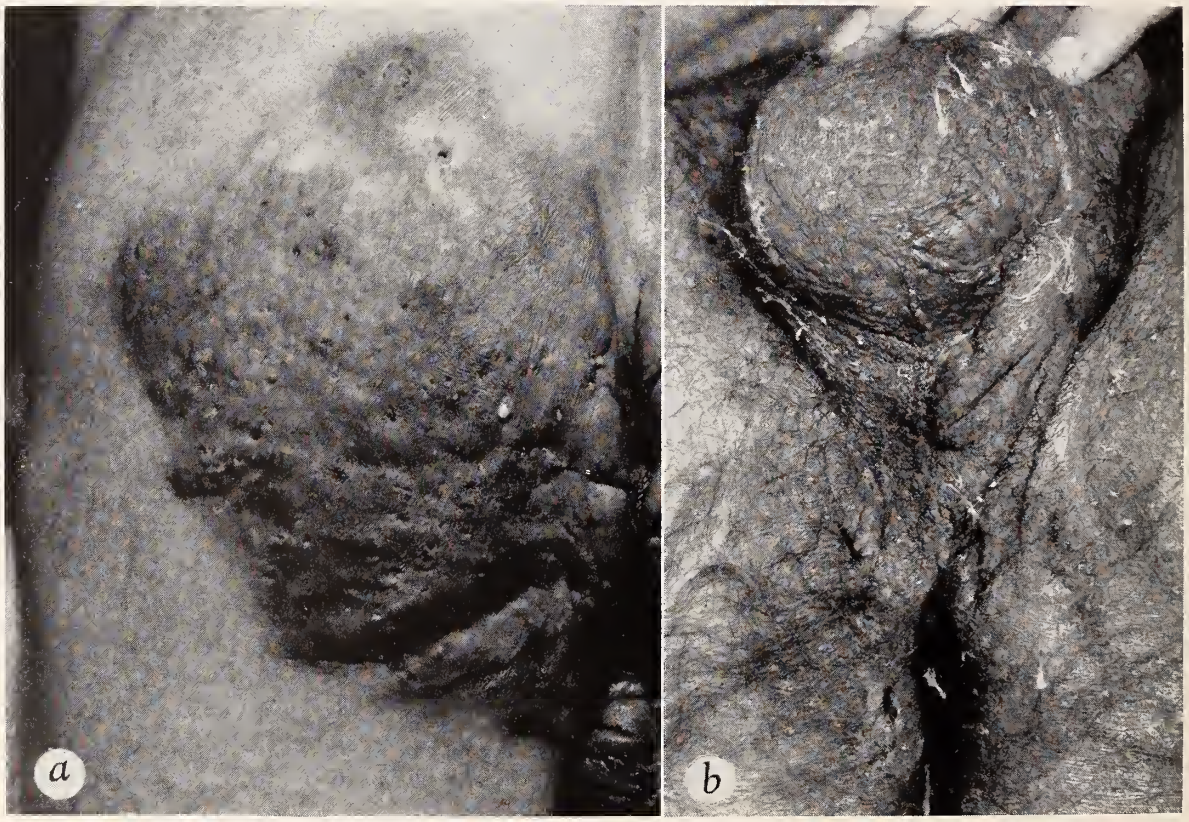

Fig. 2. Hidrosadenitis suppurativa: *(a)* of the buttocks; *(b)* of the crural folds, perineum and perianal tissues.

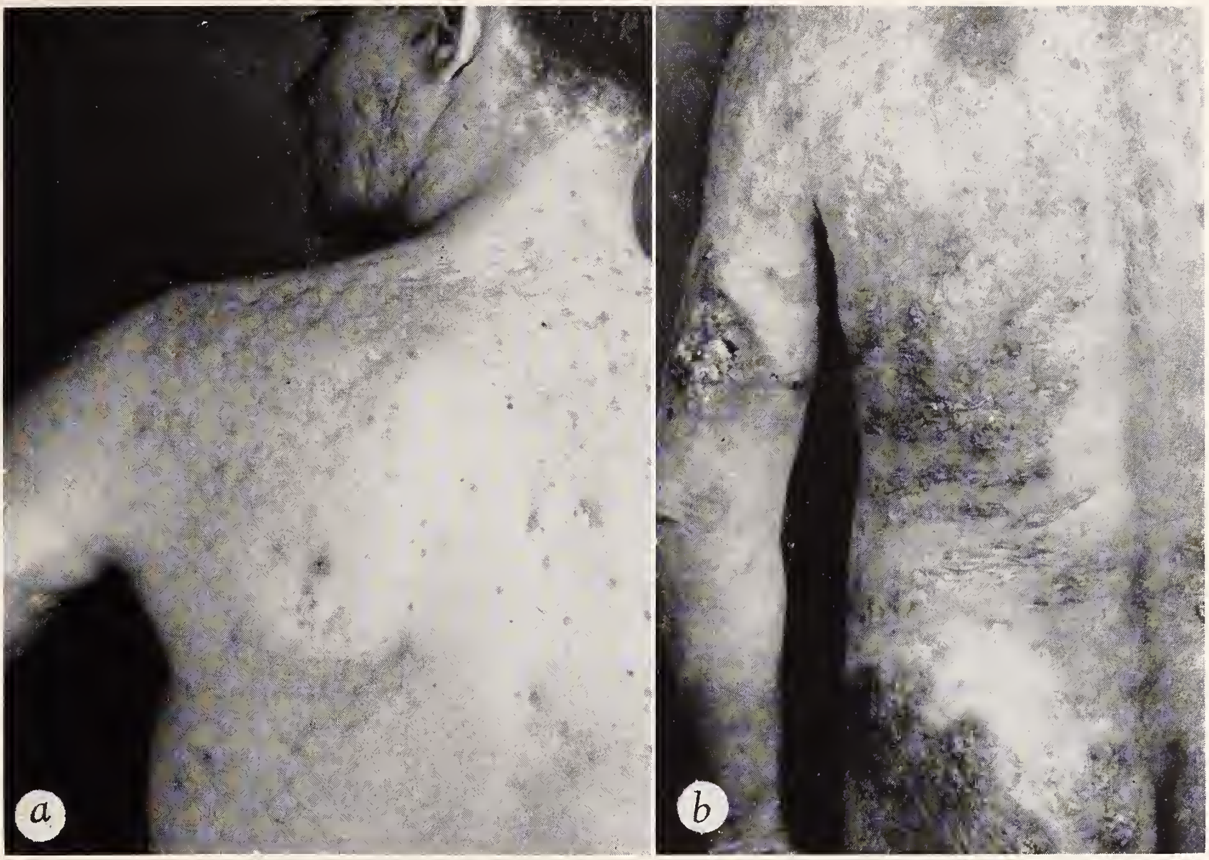

Fig. 3. Acne conglobata: *(a)* double comedones also concomitant acne vulgaris, acne deloid and hidrosadenitis (left axilla); *(b)* more widespread and extensive than in *a*.

spreads to the nuchal area and usually is found as the sole condition but occasionally occurs in combination with hidrosadenitis suppurativa and acne conglobata. As the ponderous Latin derived name, "perifolliculitis capitis abscedens et suffodiens," implies, the reaction is confined to the scalp and is composed of burrowing, undermining abscesses and follicular and perifollicular inflammation. The early lesion appears as a superficial or deep inflammatory nodule, from which the hairs may be extracted with but slight traction. The nodules enlarge and, as more appear, become connected with each other so that ultimately the vertex and occiput may be covered with a maze of intercommunicating sinus tracts. Pressure in one nodule will cause pus to escape from one or several other nodules and sinuses often at a distance of several inches. After eventual healing, which may require years, elevated nodules and ridges and atrophic scarring remain; the appearance is not unlike that of the convolutions of the brain. Comedones and superficial papulopustules are rarely found.

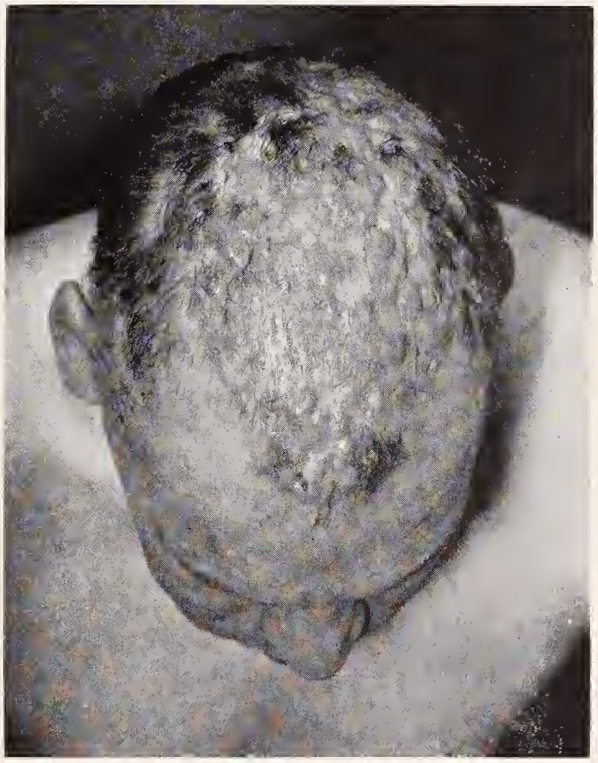

Fig. 4. Dissecting cellulitis of the scalp; linear undermining lesions and islands may be noted with normal growth of hair.

Differential Diagnosis

In typical cases the diagnosis of these uncommon three types of pyoderma is made without difficulty. In the early course, hidrosadenitis suppurativa must be distinguished from the more superficial pyococcic furuncle and carbuncle and occasionally from erysipelas, lymphadenitis and cellulitis. As the process becomes more extensive with the production of deep undermining sinuses and corded scarring, colliquative tuberculosis and the deep mycoses must be considered as well as the chronic, undermining, burrowing, nongangrenous ulcer that Meleny described in 1935.

Acne conglobata is recognized easily for the most part but cystic, indurative and cachectic acne may simulate the signs of acne conglobata; tuberculosis, syphilis and the deeper mycoses are to be ruled out by appropriate examinations on rare occasions but the characteristic comedo scar is seen only in acne conglobata. The indolent abscesses may suggest bromoderma or systemic blastomycosis.

Dissecting cellulitis of the scalp is a readily recognized condition when seen in its entirety and at the height of its activity. In the terminal phases, however, it should be distinguished from the scarring alopecias,[7] especially folliculitis decalvans and pseudo-pelade. Dissecting cellulitis of the scalp further may be separated from folliculitis keloidalis (acne keloid, dermatitis papillaris capillitii) but in this connection it should be noted that the two conditions may be found in the same patient together with hidrosadenitis and acne conglobata. All three conditions are quite distinct clinically from pyoderma faciale.[11]

Etiology

The cause of any of these pyodermas is unknown. Many theories have been advanced concerning the etiology but none are fully acceptable. Three determining factors appear which are as follows: (1) bacteriologic, (2) endocrine and (3) that most important and nebulous factor which may be defined as the "soil" of the patient or presence or absence of individual resistance.

Many bacterial organisms have been incriminated as specific causative agents in the production of these pyodermas. Yet not one of these has been proved to be the sole etiologic agent. Cultures have shown the predominant organism to be Micrococcus pyogenes, either albus or aureus. The work of Michelson and Allen and Belote on acne conglobata seems to indicate that while bacteriologically the organism is nonspecific the patient possesses an abnormal reactive capacity to such organisms. Brunsting also found no specific organism whereby the complete cause of hidrosadenitis could be explained.

In recent years the endocrine theory of etiology has found many proponents particularly in regard to the influence of androgens. While there is no doubt that such an androgenic influence exists, nevertheless this still does not explain the type of pyoderma to be produced or which is present in individual patients. The endocrine theory relates to a primary androgenic excess or to a disturbance of the androgen-estrogen ratio.

Why these three pyodermas together with others such as acne keloid and acne vulgaris may coexist in one case, or why in another hidrosadenitis may be the only cutaneous infection, and in a third only acne conglobata or dissecting cellulitis is found is not known. Part of the answer to these questions relates to the anatomy of the affected parts, that is, the loose areolar tissue of the scalp or the apocrine gland of the axillas and the anogenital areas. It is this final consideration which always leads back to the nebulous theory that it is the patient's resistance, background or "soil" that determines the capacity to react in certain specific instances. There are but few scientific facts known which help in the elucidation of this problem. Genetic factors have been implicated but have not been worked out well or completely.

Histopathology

The histopathology of these three pyodermas is essentially that of infection varying only as to the anatomy of the involved area.

Hidrosadenitis Suppurativa.[12,15]—The earliest infiltrate is seen within the lumen of the apocrine gland and in the adjacent periglandular tissues suggesting that the infection begins in the gland proper. The infection then spreads by way of the lymph spaces and channels which contain many leukocytes and sometimes clumps of cocci. In some sections there is relatively little periglandular inflammatory reaction and the infection is confined to within the gland while in others marked periglandular inflammation occurs. The infection spreads throughout the subcutaneous tissue and the eccrine glands become involved from without. Later there is a perivascular infiltrate of plasma cells and lymphocytes. In the late stages remnants of the epithelial cells of the gland wall are found together with foreign-body giant cells. The epidermis and upper parts of the cutis are affected after extensive destruction of the subcutaneous tissue has occurred.

Acne Conglobata.[10]—The histopathology of acne conglobata varies to some degree with the age of the lesion. The epithelial changes are more uniform and consistent than those in the corium. The epidermis reveals marked hyperkeratosis without parakeratosis. The basal layer remains intact but the prickle cell layer is reduced to a single or double row of cells except where horny plugs are found—here the prickle cell and granular layers exhibit an increase. Cornified whorls going on to the formation of keratotic cysts are seen. Variously sized single and double comedones are present.

The infiltrate is primarily perifollicular in the corium and is composed of polymorphonuclear leukocytes, plasma cells and lymphocytes with a few giant cells. Abscess formation is found in some areas.

Scars show loss and destruction of elastic tissue, large comedones, moderate sclerosis of the corium and marked atrophy of the epidermis. The pathologic findings resemble those of acne vulgaris.[8]

Dissecting Cellulitis of the Scalp.[1]—The infection begins as folliculitis with destruction of the follicular wall. Subsequently there is severe perifolliculitis with purulent destruction of the deep part of the follicle and disintegration of the hair. The process then extends into the deeper layers of the scalp as cellulitis and the undermined, connected lesions present clinically are produced. The infiltrate is composed of lymphocytes and plasma cells in old lesions; polymorphonuclear leukocytes are present in areas of fluctuation and suppuration. Giant cells of the foreign-body type are frequent and contain remnants of hair either as small fragments or as clumps of brown pigment. The chronic inflammatory process progresses to a deep and extensive fibrosis with loss of elastic fibers. The absence of epidermal atrophy and the presence of hair follicles are prominent features and are somewhat surprising when the final keloidal appearance and fibrosis are considered.

Treatment

The treatment of hidrosadenitis suppurativa, acne conglobata and dissecting cellulitis is similar and consequently that of all three will be discussed together with remarks about measures which may pertain to any certain condition and not to the others. Treatment may be divided into general systemic and local. Local treatment may be conservative or radical.

Systemic treatment is directed toward the maintenance of the general health and well-being of the patient and toward the correction of metabolic faults. Dietary factors should be dealt with according to the experience of the patient. Persons who have hidrosadenitis and acne conglobata sometimes are inclined to obesity. They should reduce. If chocolate, nuts and rich pastries tend to increase the severity of the pyoderma, they should be excluded from the diet. For the most part, however, a diet rich in protein but moderate or low in fat and carbohydrates is given together with vitamin supplements. In addition to dietary instructions the patient is instructed concerning adequate exercise and rest.

Thyroid by mouth, 1 to 2 grains (0.065 to 0.13 gm.) daily, seems to have definite value for certain individuals. Estrogenic preparations, such as stilbestrol 0.1 to 0.2 mg. or premarin 0.625 mg. daily for three out of four weeks, may be given to the female patient as well as the male provided that strict observation is made for the development of untoward signs of estrogenic activity.

Antibiotics administered by mouth, intramuscularly, or even injected locally in and about abscesses or applied locally in the form of wet dressings or ointment are of definite benefit when there is much acute inflammation and when the process is of short duration; however, such treatment is of much less value when the process is a scarring one of long duration with only a few islands of infection in the midst of the scar. Then, too, antibiotics do not prevent reactivation of the pyoderma when the infection has been previously brought under control with antibiotics or other measures.

Local therapeutic measures, of course, are instituted at the same time as the general measures. The usual medication offered the patient with acne vulgaris is of little value to patients who have these lesions because of the depth of the infective process under the epidermis.

Heat either in the form of infra-red light or a hot wet dressing of tap water or of a 1-in-16 dilution of Vleminckx's solution applied to sites of involvement is of help to the patient. This, together with incision and drainage of the fluctuant abscesses, may even cure a few patients early in the course, especially those with hidrosadenitis.

For patients who have extensive areas of skin affected as in acne conglobata and some with hidrosadenitis, sulfur baths according to the following formula may be given once daily or less often:

Sulfur precipitate	500.0
Sodium hyposulfate	120.0
Dilute sulfuric acid U.S.P.	250.0
Distilled water to make	4,000.0

Directions: Use ½ to 1 pint of formula in each bath. After the bath of twenty to thirty minutes' duration, pat dry, don't rub.

These patients may also be given suberythema doses of ultraviolet light, gradually increasing the duration of each exposure so that a tan results.

If comedones are present as in acne conglobata, they should be expressed. The loose hairs present in the affected sites of hidrosadenitis or dissecting cellulitis should be manually epilated. Recently I have been treating the oily cysts of acne conglobata with electrodesiccation[4,14] with success. This treatment may be applied to the more active inflammatory nodules as well and to the comedones themselves.

Roentgen therapy remains one of the best therapeutic measures available for hidrosadenitis. The earlier it is used the better the results, for when much scarring has occurred nothing will help except radical surgical excision. The roentgenologic factors used at the Mayo Clinic are: 130 kv., 6 ma., 5 mm. aluminum filter and target-skin distance, 16 inches. One hundred roentgens are given with the above factors twice a week for four to five exposures for acute hidrosadenitis. For subacute hidrosadenitis 150 r are given twice a week for four to five times, while for chronic lesions 150 r are given twice a week for three to four times. This treatment may be repeated in a month if necessary. Not all dermatologists use this technique by any means, but my colleagues and I consider that the advantages lie in the higher kilovoltage and filtration thus allowing the ray to penetrate into the basic lesion. Modifications of our technique may be used for dissecting cellulitis and acne conglobata.

With all that has been mentioned concerning treatment there are many patients who continue to have exacerbations of the pyoderma, who are in pain, and who are disabled. Radical surgical excision is indicated and provides the only cure for these patients and for those whose pyoderma is characterized by marked ulceration and by scarring with interspersed islands of infection. The areas of infection and scarring if possible are excised widely and deeply so that the surgical procedure carries into normal healthy tissue (Fig. 5*a* and *b*). A split skin graft may then be applied especially in areas where contractures are detrimental, or the wound may be covered by pinch grafts, or if the wound is not too large it may be allowed to epithelialize of its own accord without the aid of grafting. Macey[9] has discussed this subject as it pertains to axillary hidrosadenitis, and the same technique may be applied to other areas of the body. In certain areas, especially the anogenital region, the site of the excision is subject to infection and grafts do not take well (Fig. 5*c* and *d*); hence, here it is best that the wounds be as small as possible so that epithelialization may proceed with the least amount of difficulty. In the scalp the areas of excision should correspond to the convolutions of the infection so that the scalp may be covered with hair arising from the uninvolved sites.

Surgical procedures in multiple stages may be done as necessary as new areas become affected or in the event that the infected areas are too large or disseminated to be treated by a single procedure. On occasion a solitary plaque of infection and scarring as in acne conglobata may be too large to permit total excision at one time; for such a patient excision of various portions should be done as multiple procedures. It behooves the dermatologist to recognize the limits of his specialty. If satisfactory results are not obtained by conservative measures and if the dermatologist is not capable of performing the indicated surgery, the patient should be referred to a competent surgeon.

Summary and Conclusions

A brief review of the data on hidrosadenitis suppurativa, acne conglobata and dissecting cel-

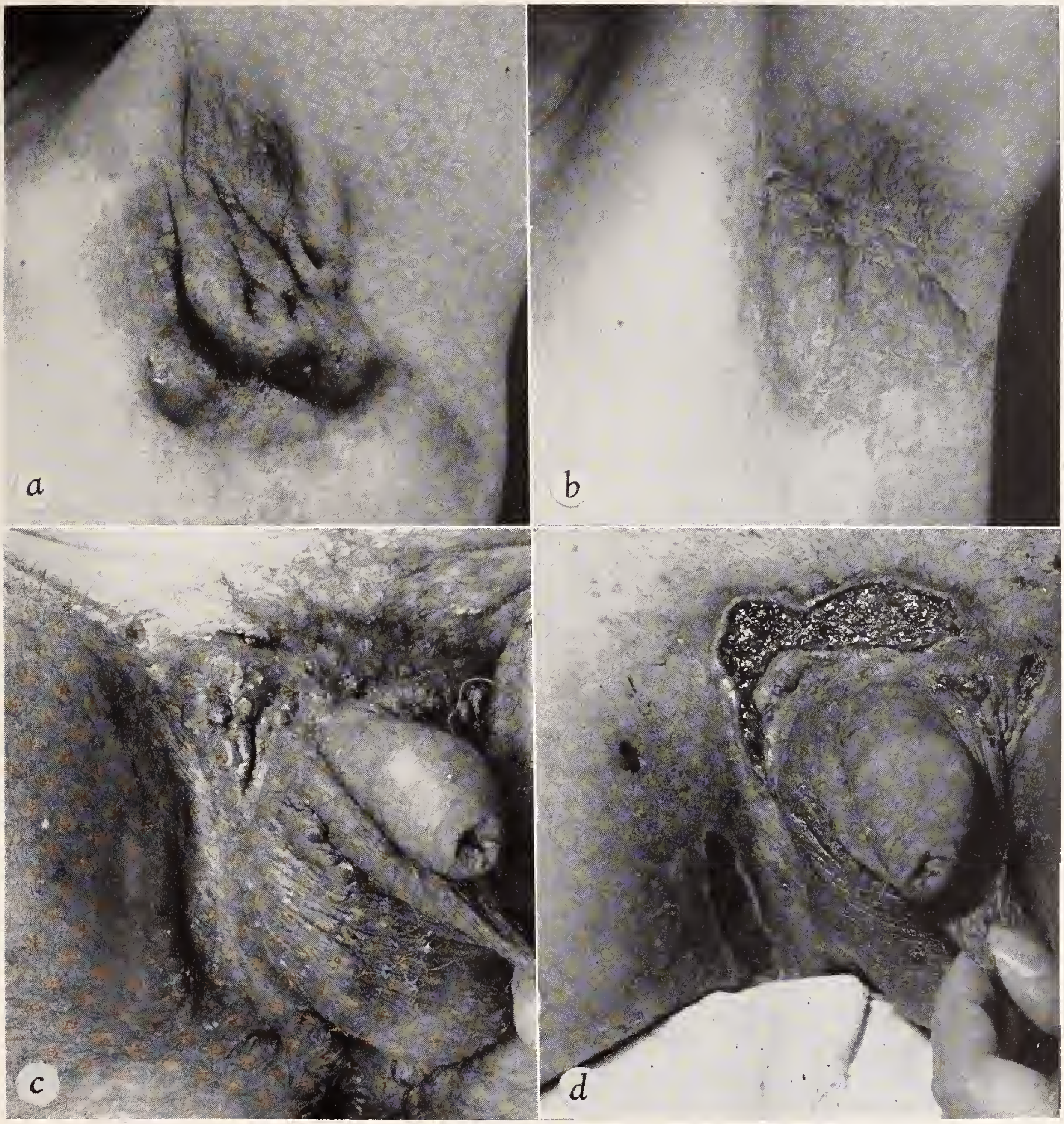

Fig. 5. Hidrosadenitis suppurativa: *(a)* of left axilla before wide total excision and graft; *(b)* after excision and graft, same case as *(a)*; *(c)* prior to surgery in another case; *(d)* same case as *(c)* after excision and saucerization; wounds are clean and granulating.

lulitis of the scalp has been given. Emphasis has been placed on treatment and it has been stressed further that when the patient does not respond to conservative methods of therapy including roentgen rays, the patient should then undergo radical surgical excision of the areas of infection and scarring. These uncommon pyodermas are but similar expressions of the same basic pathologic change and disease.

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THE EFFECT OF VITAMIN K_1 ADMINISTERED ORALLY ON THE CONTROL OF THE COAGULATION DEFECT INDUCED BY DICUMAROL

BENJAMIN F. FULLER, M.D., and
NELSON W. BARKER, M.D.
Rochester, Minnesota

SINCE the introduction and widespread use of dicumarol as a valuable anticoagulant for the treatment and prophylaxis of thrombotic and thrombo-embolic disease there has been a need for a drug which would control rapidly the coagulation defect induced by dicumarol. The synthetic preparations having vitamin K activity, such as menadione (2-methyl-1,4-naphthoquinone), were first used. In early studies at the Mayo Clinic it was found that small doses of menadione were ineffective in most instances. In 1942, Overman, Stahmann and Link reported that menadione would inhibit the effect of dicumarol in rabbits. In 1943, Shapiro, Redish and Campbell found that large doses would give the same effect in man. In 1943 also, Davidson and MacDonald reported that the prothrombin time in three out of four patients who had received dicumarol was restored to normal soon after intravenous administration of large doses of vitamin K_1 oxide (one of the naturally occurring substances having vitamin K activity). Lehmann reported that hemorrhage after dicumarol was controlled by transfusions of blood and large doses of menadione by mouth.

In 1944, Cromer and one of us (Barker) reported studies on the intravenous administration of 64 mg. of menadione bisulfite to patients whose prothrombin times rose to levels indicating less than 10 per cent prothrombin activity following the use of dicumarol. It was found that eighteen hours after its administration the prothrombin time of thirty-five of the thirty-seven patients tested decreased significantly.

Davidson, MacDonald and Freed, and Lucia and Aggeler also reported on the successful treatment of the coagulation defect produced by dicumarol with intravenous administration of vitamin K_1 oxide.

Recently there has been a renewal of interest in the use of vitamin K_1 oxide. James, Bennett, Scheinberg and Butler found in a careful study that the prothrombin activity which had been depressed by dicumarol rose to levels above 30 per cent in twenty-six patients given vitamin K_1 oxide intravenously. It took an average of thirteen hours from the time of administration to obtain this effect.

Miller, Harvey and Finch found that vitamin K_1 and vitamin K_1 oxide were effective in decreasing the prothrombin time in doses of from 500 to 1,000 mg. It exerted its effect in four to twenty-four hours after intravenous administration. Vitamin K_1 was found to be slightly more effective than vitamin K_1 oxide. Their patients tended to show increased refractoriness to dicumarol for periods up to two weeks following a single dose of either of these substances. They suggested that this be kept in mind when the use of these substances is contemplated for patients with thrombo-embolic disease.

Our experience with vitamin K_1 (2-methyl-3-phytyl-1,4-naphthoquinone) in fourteen patients who had received dicumarol is summarized in Table I. It was administered orally in a 500 mg. dose in gelatin capsules each containing 250 mg. It was given between 4:00 and 5:00 p.m., and the blood was drawn for the determination of the prothrombin time between 8:00 and 11:00 a.m., the following morning.

All determinations of the prothrombin time were done by the Magath modification of the Quick method. With the thromboplastin which is used in this test the normal prothrombin time is 17 to 19 seconds. Prothrombin times corresponding to 30 per cent, 20 per cent, and 10 per cent of normal prothrombin activity as determined from a dilution curve are 27 seconds, 35 seconds, and 58 seconds, respectively.

In addition, tests were made on two patients not listed in Table I four and eight hours after administration of vitamin K_1. A significant drop in prothrombin time was noted at the end of four hours. Eight hours after administration, the prothrombin time of the first patient had dropped from 37 to 21 seconds and that of the second patient from 39 to 26 seconds.

This work was done while Doctor Fuller was a Fellow in Medicine, Mayo Foundation. Doctor Barker is Consultant in the Division of Medicine, Mayo Clinic, Rochester, Minnesota.

TABLE I. EFFECT OF 500 VITAMIN K_1 ON QUICK PROTHROMBIN TIME AND ON PROTHROMBIN ACTIVITY

Case	Quick Prothrombin Time, Seconds		Prothrombin Activity, Per Cent		Amount and Effect of Menadione Bisulfite Given Intravenously
	Before K_1*	20 Hours Later	Before K_1*	20 Hours Later	
1	92	23	7	50	None given
2	55	23	11	50	None given
3	100	25	6	40	None given
4	48	21	13	60	None given
5	57	19	10	80	None given
6	44	21	14	60	None given
7	44	21	14	60	None given
8	62	22	10	55	None given
9	29	21	27	60	None given
10	41	28	16	29	None given
11	34	21	21	60	36 mg. 24 hr. earlier; minimal effect.
12	92	23	7	50	72 mg. daily for 2 days without effect.
13	29	19	27	80	72 mg. daily for 3 days with minimal effect.
14	48†	21	13	60	72 mg.; repeated 4 and 8 hr. later. (Patient in renal failure.)

*500 mg. of vitamin K_1 by mouth.
†250 mg. of vitamin K_1 by mouth.

In Cases 12 and 14 (Table I) a "rebound" phenomenon occurred. That is, the prothrombin time rose again to levels of 52 seconds and 41 seconds, respectively, over a three-day period, although no dicumarol had been given for several days. A second dose of vitamin K_1 controlled this. The blood urea of both of these patients was high.

It can be seen that the prothrombin time of thirteen of the sixteen patients who were tested returned to near normal levels and that of the other three was significantly decreased twenty hours or less after administration of vitamin K_1.

Comment

When the effectiveness of any dicumarol antagonist is being evaluated, it is important to think in terms of prothrombin activity rather than in terms of prothrombin time. The reason for this is apparent when the fact that the relationship between the two is not a linear relationship is considered. In other words, with the thromboplastin used at the Mayo Clinic the reduction of prothrombin time from infinity to 60 seconds would represent an increase of prothrombin activity of only 10 per cent while the reduction of the prothrombin time from 27 to 18 seconds would represent an increase of prothrombin activity of 70 per cent. These percentages are computed from a curve on which various dilutions of normal plasma are plotted against the prothrombin time for each dilution.

Results of the work of Cromer and one of us (Barker) with menadione bisulfite, previously mentioned, briefly can be compared to the results of our work with vitamin K_1. Cromer and Barker studied the effect of a single dose of 64 mg. of menadione bisulfite on the excessive hypoprothrombinemia induced by dicumarol. In a total of thirty-seven cases studied, they obtained reduction in prothrombin time in eighteen hours as follows: (1) to less than 55 seconds (about 10 per cent prothrombin activity) in 95 per cent of cases, (2) to less than 45 seconds (about 15 per cent prothrombin activity) in 81 per cent, and (3) to less than 35 seconds (about 20 per cent prothrombin activity) in 59 per cent.

With a single oral dose of 500 mg. of vitamin K_1, the prothrombin time in our patients was reduced to less than 27 seconds (30 per cent prothrombin activity) in fifteen of the sixteen patients (about 94 per cent) in less than twenty hours. This is in agreement with previous reports.[4,7]

On the basis of the information which is available in respect to the dicumarol antagonists, definite therapeutic implications seem possible. When dicumarol is given, the dosage is varied in amount and frequency in such a way as to keep the prothrombin time within the therapeutic range. With the thromboplastin which is used for prothrombin time determinations at the clinic, this range is between 27 and 58 seconds which corresponds to prothrombin activity between 30 and 10 per cent of normal. An ideal range is considered to be from 35 seconds to 45 seconds (prothrombin activity of 20 per cent to 15 per cent of normal). These ranges are selected on purely empirical grounds and are based on the observation that few patients have intravascular clotting when the prothrombin activity is less than 30 per cent of normal and bleeding is infrequent when the prothrombin activity exceeds 10 per cent.

Little difficulty is encountered in the day-to-day management of patients who are receiving dicumarol if they are properly selected.[6] However, patients who are receiving dicumarol for whom it is desirable to lower the prothrombin time tend to fall into three groups. In Group 1 are those patients whose prothrombin time reaches a dangerous level, but who present no clinical evidence of overdosage. It generally is desirable to lower the prothrombin time of these patients but to continue anticoagulant therapy. Group 2 consists of those patients for whom it becomes desirable to discontinue anticoagulant therapy completely and as rapidly as possible, but no immediate emergency exists. An example of such a patient would be one in whom renal failure began to develop while he was on treatment with anticoagulants. Group 3 consists of patients who sustain sudden and severe bleeding. While this group is small numerically, it is made up of the patients who have truly emergency conditions.

With this classification in mind, it would seem to follow that the condition of patients in Group 1 could be adequately controlled with intravenous administration of 32 to 64 mg. of menadione bisulfite, since it usually brings the prothrombin time from a dangerous to a therapeutic level. Although it may render a patient a little more refractory to subsequent dicumarol therapy, it does not, as a rule, seriously interfere with continuation of treatment.

The condition of patients of Group 2 can usually be controlled with vitamin K_1 in doses of 500 mg. by mouth, insofar as present experience indicates.

Patients of Group 3 are still the greatest problem, since none of the available dicumarol antagonists exert a rapid enough action to have any significant immediate effect. The immediate treatment of this group must continue to be supportive with replacement of lost blood and local treatment at site of bleeding if possible. Also, the use of vitamin K_1 is indicated in preference to the use of menadione because its action is more rapid and more nearly complete than that of menadione.

One consideration in the oral use of vitamin K_1 as a dicumarol antagonist should be mentioned, although at present it is largely theoretical. Since vitamin K_1 is a fat soluble vitamin, its absorption is retarded in the absence of bile from the intestine and its effectiveness is thereby reduced. Thus, in the presence of an external biliary fistula it could be quite ineffective in combating a prothrombin deficiency. We have had experience with only one such case, and in that case vitamin K_1 was ineffective. It is possible that the simultaneous administration of bile salts to such patients would increase the effectiveness of vitamin K_1, although we have had no experience with this.

Summary

Our experience with vitamin K_1 indicates that it is a satisfactory dicumarol antagonist when given in a single oral dose of 500 mg. This is in agreement with the experience of others who have used the drug.

Vitamin K_1 appears to exert a more rapid and more nearly complete action than menadione.

No toxic or untoward effects were observed in any of our patients following the use of vitamin K_1.

Watching for a "rebound phenomenon," particularly in patients developing renal failure, is advisable.

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CONGENITAL AURICULAR FISTULA

BENJAMIN BOFENKAMP, M.D.
Minneapolis, Minnesota

ALTHOUGH congenital auricular fistula is a common anomaly, very little has been written about it and many physicians do not recognize the condition. This is reflected by frequent reports of misdiagnosed cases.[2,3] Three of the six cases seen by the writer during the past eight months had been previously diagnosed and treated as infected sebaceous cysts.

Congenital auricular fistula has a slit-like orifice leading into a tract a few millimeters deep. The condition may be bilateral, but is more commonly unilateral. The greatest number of fistulae appear in the preauricular region just anterior to the helix[1] (Fig. 1). Because of the frequent occurrence of the lesion in this location, it is often called preauricular fistula; however, the fistula may be postauricular or on the auricle proper. Microscopically, the tract is lined with stratified squamous epithelium.[5]

Various theories concerning the embryology of congenital auricular fistula have been presented, but the one most acceptable is the intertubercular theory of His.[5] According to that theory, the fistula is formed by inclusion of epidermis in one of the grooves existing between the six tubercles forming the external ear. Virchow's original theory of branchial origin now has few exponents. Congenital auricular fistula is regarded as being hereditary and is transmitted as an irregular dominant factor.[4] In two of the six cases reported here, other members of the family had a congenital auricular fistula.

When the fistulous tract becomes infected, the region about the fistula is swollen, inflamed, and tender. Slight digital pressure will produce purulent exudate from the primary tract or from a secondary fistula which results from chronic infection (Fig. 2). During the infected phase, the condition may be mistaken for a sebaceous cyst and improperly treated.

Treatment is indicated when the fistula is infected. Permanent cure can be obtained only by complete surgical excision of the primary and secondary fistulous tracts. Complete extirpation is facilitated if the tracts are injected with methylene blue, thereby staining all of the ramifications. The injection should be made at least a day prior to surgery so that the dye which escapes into the tissues adjacent to the tracts can be phagocytosed leaving only the tracts stained. This technique eliminates the possibility of removing more tissue than is necessary. Either local or general anesthesia may be employed. An elliptic incision is made in the skin about the fistula and the tracts removed *in toto* by sharp dissection (Figs. 3 and 4). Slight undermining of the adjacent skin is required before the wound is closed with interrupted black silk sutures and covered with a pressure dressing. Complete healing occurs within a week.

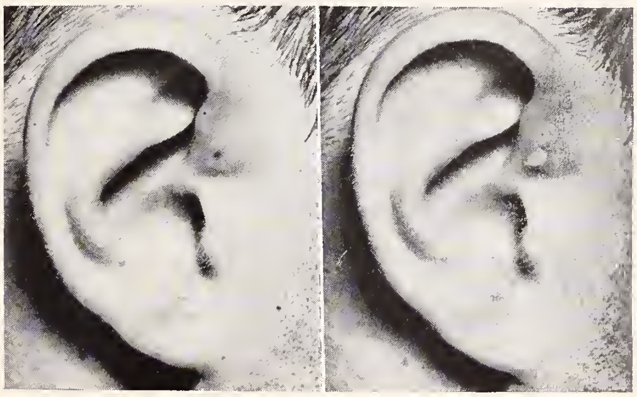

Fig. 1. *(left)* The dimpled area, anterior to the crus helix, is the most common location of congenital auricular fistula.

Fig. 2. *(right)* Digital pressure will produce a purulent exudate from an infected fistula.

Report of a Typical Case

A twenty-five-year-old white man had had bilateral preauricular fistulae since birth. Both fistulae had drained intermittently since early adult life. In January, 1949, because of a persistent irritating discharge, both had been incised, but continued to drain. The following July, incisions were repeated and followed by silver nitrate cautery, but the drainage persisted.

The patient's sister had bilateral preauricular fistulae which had never become infected. When the patient was seen on December 13, 1949, he had bilateral swollen, inflamed, cystic masses anterior to the crus helicis (Figs. 5 and 6). Firm finger pressure produced purulent exudate from the fistulous tracts. On the day of admission, the fistulae were injected with methylene blue and

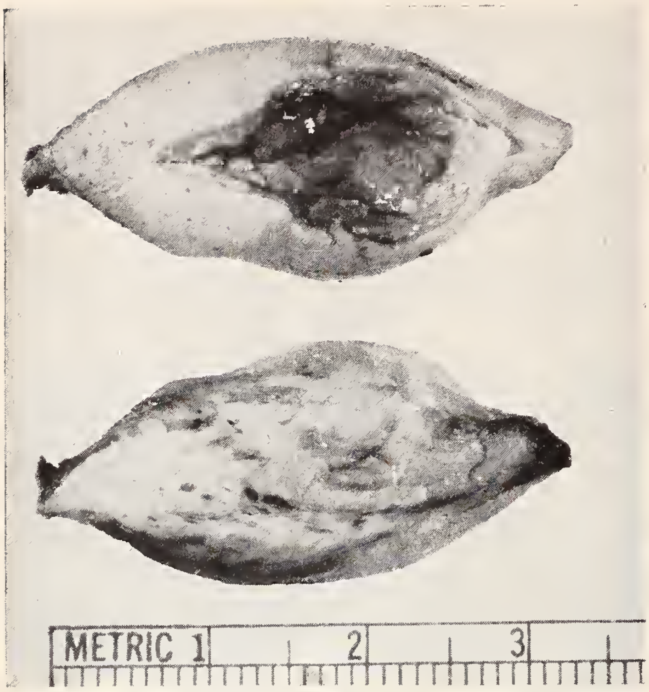

Fig. 3. *(above)* The excised bloc of tissue with the injected tracts dissected.

Fig. 4. *(below)* Under surface of the excised bloc demonstrating that the entire injected fistulous tract has been removed.

on the following day, under local anesthesia, the tracts were removed *in toto* through an elliptic incision. The wounds were closed with interrupted silk sutures and pressure dressings were applied. Five days later, the sutures were removed and the wounds were found to be healing well. Six months later the patient had had no further swelling or discharge (Figs. 7 and 8).

The pathologic specimens consisted of two similar elliptical pieces of skin-covered tissue measuring 2.5 cm. x 1.5 cm. x 1.0 cm. In the center of the skin portion of each of the two pieces, there was a slit-like opening leading into a sinus tract which ended blindly. The tracts were stained blue. Microscopically, the tracts were lined with stratified squamous epithelium and surrounded by plasma cells and lymphocytes.

Summary

Congenital auricular fistula is an anomaly which gains clinical significance if the tract becomes infected.

Excellent results can be obtained by complete surgical excision of the original fistula and its secondary tracts which result from infection.

A typical case of congenital auricular fistula with proper surgical management is presented.

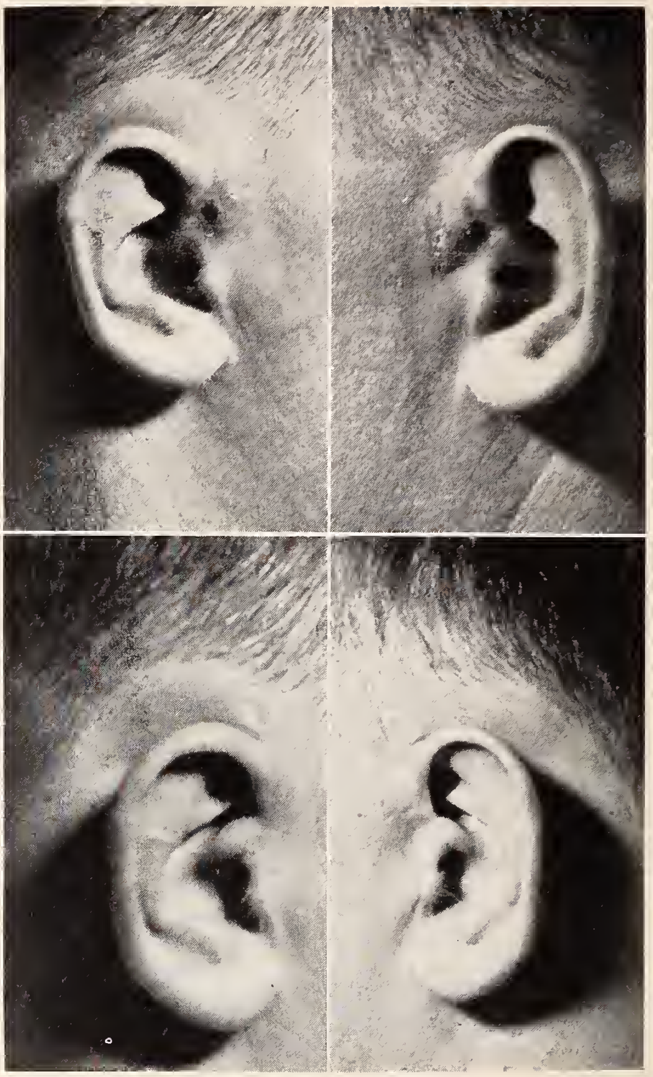

Fig. 5. *(upper left)* Preoperative appearance of the right side.

Fig. 6. *(upper right)* Preoperative appearance of the left side.

Fig. 7. *(lower left)* Postoperative appearance of the right side.

Fig. 8. *(lower right)* Postoperative appearance of the left side.

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INTRAVENOUS ANALGESIA AND AMNESIA IN OBSTETRICS

F. L. SCHADE, M.D.
Worthington, Minnesota

THE purpose of this presentation is twofold: first, to give some consideration to any plan of premedication in obstetrics; second, to present the method of intravenous obstetrical analgesia and amnesia as practiced in our hospital.

Premedication in obstetrics has at least the following functions to perform: first and foremost, it must meet the desires and welfare of the mother and her baby; second, it must meet the requirements of the physician.

The patient's welfare is met by the assurance that all that is done for her and her baby is for the best. This assurance is instituted early in the antepartum period with the object in mind of removing fear and apprehension. She is reminded that birth is one of nature's natural phenomenon—a phenomenon accompanied by a certain amount of discomfort, it is true, but with her co-operation and at the proper stage of labor when her pains are such that she desires some help and relief, we are able to give her prompt and almost total relief from her discomfort without interrupting the progress of her labor and with no harm to her baby. Ideally, premedication should produce psychic sedation and amnesia for the mother during the greater part of her labor and during the entire period of her delivery. The agents selected should permit the mother to rest between contractions and so build up her functional reserves. The technique should give rapid and pleasant induction; it should be devoid of hazards for mother and baby, yet offer the mother a pleasant and peaceful emergence from the entire event.

Adequate premedication should permit the obstetrician to practice a conservative policy in the conduct of labor. By and large, he prefers an unconscious patient who will remain perfectly still irrespective of the required duration, position or extent of the obstetrical procedure required for delivery. It is his desire that pospartum symptoms should be few or absent, and from this viewpoint due regard must be given to the complicating factors presented during the immediate antepartum period in the unitary plan of premedication.

The amnesic and analgesic agents and technique should possess a wide margin of safety for both mother and baby. The agents or technique should not be a cause of prolongation of labor, increased operative interference, or complication of labor. The drugs should be devoid of undesirable side effects to both mother and baby. The premedicants should permit exact control of the selected dose as there may be a wide individual variation in tolerance to the drug or drugs used. They must not interfere with the natural forces and protective mechanisms of labor.

Premedication in obstetrics is still a controversial subject even among the experts. However, I believe it is quite accurate to say that the combination of scopolamine and demerol is the method of choice among many obstetricians who desire analgesia and amnesic effects.

From the literature, scopolamine is found to have the following advantages in obstetrics:

1. It is the best amnesic available.
2. It produces psychic sedation with its accompanying relief of apprehension and anxiety, as well as dreamless sleep.
3. It prevents sweating and produces dryness of mucous membranes of the respiratory tract, often to a degree better than atropine.
4. It has the capacity of preventing the vagal type of carotid sinus syndrome.
5. It can relieve bronchospasm and in many instances laryngospasm.
6. It may increase maternal respiration and combat the respiratory depression produced by more potent cortical depressants.
7. Its effect on cardiac rate is not as apparent clinically as is that of atropine.
8. There are no demonstrable ill effects on fetal or neonatal vital functions.
9. Scopolamine can be administered by any route, and the duration of its desirable effects is about two hours.
10. Scopolamine appears to be less toxic than atropine and has a larger margin of safety.

Some of its chief disadvantages that have been pointed out are:

1. It lacks analgesic potency.
2. On occasions it is said to produce edema of the eyelids, lips or uvula.

3. When given intramuscularly, it has the cortical effect of producing excitement and overactivity in about 40 per cent of obstetrical cases.

Demerol hydrochloride is indicated for the relief of severe pain regardless of etiology. Its analgesic power ranks between morphine and codeine and respiratory depression is uncommon. The effect of demerol upon the pregnant uterus of human beings has been studied by Abreu and his associates, and it was found to have no significant effect upon uterine tone or activity. Demerol hydrochloride when used in control of labor pain has been shown to produce satisfactory analgesia, to shorten labor in the primipara, and to be without significant effect upon the baby.

Shortening of labor may be the result of the drug's spasmolytic effect on the cervix or may result simply because the bearing down is more vigorous when the pain threshold is raised. Demerol alone produces analgesia but not amnesia. If amnesia is desired, scopolamine or barbiturate also should be used.

During the past twenty-three months in 366 cases, three of which were twin deliveries, we have used the following premedication and technique—a method which in our experience has secured a high degree of satisfactory analgesia and amnesia with safety to the mother and a minimum or no effect on the newborn.

We give seconal, gr. ¾ or gr. 1½ by mouth following the admission enema. When the patient is making sufficient progress and begins to mind her pains, we administer 50 mg. of demerol and gr. 1/150 of scopolamine intravenously, and while giving the intravenous medication, the nurse gives the patient 50 mg. of demerol subcutaneously. The scopolamine is dissolved in 1 cc. of sterile water* in a 2 c.c. syringe to which is added 1 c.c. of demerol hydrochloride solution containing 50 mg. of demerol. A 25-gauge needle is used and the medication is slowly injected into the antecubital vein. It is important to take three or four minutes for the total injection. It is our custom to carry on a conversation with the patient while slowly injecting the drug and be watchful for any signs of sensitivity, such as a choking sensation or the expression of a feeling of impending disaster. In no instance have we had to discontinue the injection. In many instances the patient voluntarily states that she is experiencing a wonderful feeling and asks us what the drug is. In the majority of cases the patient is sound asleep between contractions in five to seven minutes after introducing the medication. In about 10 per cent of our cases the patient vomited while the needle was in the vein, but we did not discontinue the drug. My nurses inform me it is their impression that about 75 per cent of obstetrical patients receiving intramuscular scopolamine and demerol vomit and their vomiting is more copious and over a longer period of time.

In 322 deliveries of the 366 cases the medication was given only once, while in forty-three instances it was given twice. In only one case was it found necessary to give the medication three times before delivery was accomplished. The shortest time interval before repetition of scopolamine and demerol, intravenously, was one hour and thirty minutes, and the longest time interval was ten hours and fifty minutes. Omitting the three cases in which the time interval of repetition was over six hours, the average lapse of time before the medicine was repeated was two hours and fifty minutes.

The average length of time before delivery was accomplished after the last intravenous medication was one hour and twenty-one minutes. In computing this average I omitted those cases in which no demerol or scopolamine was given during the last four hours of labor. There were eighteen such cases in this series.

Less than 5 per cent of these patients receiving intravenous scopolamine showed any cortical excitation, in contrast with 40 per cent when using the intramuscular route.

When the intramuscular route was used in obstetrical cases, partial or total failures to obtain satisfactory amnesia were due to the fact that the patient received medication too late for material benefit. Due to the quick action obtained by using the intravenous route, the number of such failures is greatly reduced. No babies delivered by this method showed any persistent cyanosis, evidence of narcosis, or otherwise merited the term "sleepy baby," and short quiet labors were the rule. By the use of intravenous demerol and scopolamine, we can honestly tell our patient we can give her prompt and almost total relief from her discomfort without interrupting the progress of her labor and with no deleterious effects to her or her baby.

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*For the past 2 months we have been using scopolamine in ampules (Burroughs Wellcome & Co.).

IMPRESSIONS FROM EUROPEAN NEUROSURGICAL CLINICS

LEONARD A. TITRUD, M.D.
Minneapolis, Minnesota

MOST of the summer of 1950 was spent in completing a tour of the principal European Neurosurgical Centers. The previous report* did not include the continental clinics.

The first visit was to the University of Zürich in Switzerland where the Sixth International Congress of Pediatrics met in July. A session was devoted to the neurosurgical problems of children in which a number of neurologists, neuropathologists, and neurosurgeons from various countries participated. The principal interests were concerned with hydrocephalus, subdural hematoma, convulsive disorders, and carotid-jugular anastomosis for the revascularization of the brain.

Professor Hugo Krayenbühl directs the neurology and neurosurgical departments at the University of Zürich. After training with Professor Hugh Cairns in England, he came to Zürich about 15 years ago to establish the first true neurosurgical center in Switzerland. During these years, the department gradually outgrew the bed and surgical facilities of the small hospital Professor Krayenbühl was granted by his old chief, Professor Claremont. In 1951, this service will move into a 900-bed surgical hospital that is under construction, and will have two air-conditioned operating rooms as well as its own electro-encephalogram and x-ray laboratories.

At the present, Professor Krayenbühl has eight assistants who care for the fifty-five neurosurgical bed service. Dr. G. Weber occupies the position of first assistant. The nonsurgical neurologic patients are treated on the medical service. There was a rather international coloring of the service with patients from South America, Spain, Italy, England, France, and Switzerland. Most of the clinicians spoke German, French, and English and in addition possessed knowledge of Spanish and Italian. During ward rounds with Doctor Max Klinger, the Professor's second assistant, it was observed that most of the problems were concerned with several varieties of brain and spinal cord tumors as well as with protruded intervertebral disks. Here, as in most University Clinics, the intervertebral disk problem was solved on the neurosurgical service. Spinograms were rarely done for disks which were believed to be herniating between the fourth and fifth lumbar or between the fifth lumbar and first sacral vertebrae. Cisternal spinograms were carried out regularly for high spinal canal lesions. Spinal fusions were rarely done for the patients who had protruded disks.

Approximately 500 verified brain tumor cases and 100 verified spinal cord tumor cases are treated here annually. Professor Krayenbühl has had extensive experience with spinal cord tumors and has reported on approximately 185 such cases. Cerebral arteriography began to be used extensively here in 1937 in localizing aneurysms and other lesions. The staff has found more than sixty angiomas and aneurysms by this means so far. The percutaneous method is used except for the vertebral arterial study where exposure of the vessel has provided the best results. A Lysholm x-ray table in a room adjoining the surgical suite facilitates the angiographic study. Doctor Hess very ably carries on extensive electro-encephalographic work with an eight-channel Grass instrument in this same clinic. Professor Krayenbühl attempts never to use either pneumo-encephalography or pneumo-ventriculography for cerebral neoplastic localization unless it is absolutely necessary. It is a policy to treat all the brain tumor cases postoperatively with deep x-ray. Ordinarily, doses of 12,000 to 14,000 roentgens are used. There was a recent experience with a patient who died about five months after having a glioblastoma multiforme partially removed and receiving postoperative roentgen therapy. No histologic trace of the tumor remained; but there was evidence of brain tissue destruction which could have been caused by the x-rays.

Approximately 300 patients having mental illness have had prefrontal lobotomies performed here. Great caution is exercised in the selection of cases. The procedure has not been employed as yet for the treatment of pain. No sympathetic system surgery is done because of the insufficient number of beds and lack of operating time. As in most European Neurosurgical Clinics, the cranial surgery is done with local anesthesia, and intravenous fluids and blood are seldom given during the procedure. The brain surgery witnessed was done with meticulous care. Professor Krayenbühl's particular interest with neurosurgical lesions concerns the removal of cerebello-pontine angle acoustic neuromas. He placed great emphasis on carrying out operations conservatively so as not to cripple patients, believing it better to reoperate if necessary. During one clinical meeting both Professors Krayenbühl and Dorothy Russell, who is the neuropathologist of the London Hospital, recited experiences with carcinogenic dangers from thorotrast for cerebral angiography. Not only may the thorotrast initiate sarcomas in the liver as well as other organs having reticulo-endothelial tissue but "thorotrast tumors" will form beside the carotid artery at the site of injection.

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*Titrud, Leonard A.: Impressions from European Clinics. Minn. Med., 32:811-814 (Aug.) 1949.

Professor Albert Jentzer is chief of surgery at the University of Geneva in Switzerland. Although a general surgeon, he does the necessary neurosurgery. In his absence, Doctor Horace Barbey was in charge of the surgical department. A formal neurosurgical division has never developed in Geneva. The University's teaching hospital is the Hopital Cantonnal which has twenty-five of its 200 beds for patients with neurosurgical problems. Although most types of neurosurgical procedures are done here, this field does not occupy a particular place of prominence or interest. Much traumatic neurosurgery is done and most of the additional work is that of necessity.

Paris has been a place of importance in original neurological and neurosurgical thinking and research for a long time. Unfortunately, the difference existing between the French and English languages has provided a constant barrier against a full and common understanding of many important advances in medicine and surgery. The University of Paris has about 8,000 medical students and the senior classes usually average about 600 students. There are considerably smaller medical colleges located in Bordeaux, Lyons and Marseilles. Therefore, Paris has developed as the center of medical teaching in France and this is particularly true in neurosurgery with its eight trained neurosurgeons.

The premature death of the famous Clovis Vincent resulted in his renowned neurosurgical clinic at the Hôpital de la Pitié to come under the able direction of a general surgeon who is also gifted in neurosurgical work, Professor Petit-Dutaillis. Doctor Gerrard Guiot, assistant to the chief, accomplishes much of the clinical work here; he is an excellent surgeon. This clinic is one of the largest in France and has about 130 neurosurgical beds. In addition to a modern operating suite having two air-conditioned operating rooms, the clinic's own x-ray facilities are also centrally located. An older and adjacent operating suite serves as an auxiliary unit. A great deal of tumor surgery is done on this active service. All of the intervertebral disk surgery of this large hospital is done by the neurosurgeons. Spinal fusion is almost never done for these patients. Prefrontal lobotomy for mental disease and sympathetic surgery for hypertension have not been done extensively here. Their results for relieving intractable pain have been much better after rhizotomy or tractotomy than after prefrontal lobotomy.

Doctor Guiot informed me that Professor Petit-Dutaillis observed the existence and location of sensory nerve tracts in the brain stem and midbrain about 25 years ago. This information led him toward the perfection of high cervical cordotomy for obliterating intractable pain in the upper extremity. It was learned that the fibers of the spinothalamic tract concerning the upper extremity are in the extreme anterior part of the spinal cord, extending quite medially in the upper cervical segment. The sensory fibers for the lower part of the body are directly behind these. It was found that transecting this pain tract at the third or fourth cervical segmental level was dangerous because of respiratory disturbance. Therefore, the operation is performed quite safely now at the first or second cervical segmental level; and done with local anesthesia so as to make sensory tests possible during the cordotomy. Over the years, approximately 100 patients have been treated with this procedure. The staff believes that midbrain tractotomy and prefrontal lobotomy are much less satisfactory methods than cervical cordotomy to free the upper part of the body from pain.

Cerebral arteriography has reached a high level of perfection at this Neurosurgical Clinic of Professor Petit-Dutaillis, particularly because of the diligent work of Doctor Pierre Sergent. He has performed 500 to 600 carotid and about thirty vertebral arteriograms at the rate of nine or ten a week. These injections are all percutaneous and he observed that it is easier to do a vertebral than a carotid angiogram. He learned that with carotid filling, the circulation in the posterior and basilar part of the brain almost never appears on the x-rays. Likewise, vertebral arteriography almost never outlines the carotid circulation. Doctor Sergent has done extensive anatomic postmortem studies of the blood circulation of the brain. He has been impressed particularly by the frequent arterial variations of the basilar circulation as well as many peculiarities in the collateral circulation in the brain. His work which is being published will be a valuable contribution.

Another famous neurosurgical clinic is in the historic Hôpital de la Salpétriere under the direction of Professor Jean Guillaume and his able assistant Doctor Gabriel Mazars. There are about fifty neurosurgical beds at this hospital which also houses an outstanding department of medical neurology. Guillaume and Mazars carry on additional work at the Clinique Montagne and Clinique Moliere which each has about forty neurosurgical beds. Their neurosurgical team operated on approximately 800 brain tumor patients last year. Additionally, an unusually large number of prolapsed intervertebral disks were removed. They have done about 80 cortical excisions for focal epilepsy with favorable postoperative results. The wife of Doctor Mazars has contributed greatly in this work because of her skill in localizing the epileptogenic areas and particularly by her interpretation of the many electro-encephalograms. Their work in this field is outstanding in France; and at the present they are preparing a publication concerning the surgical treatment of epilepsy.

Guillaume and Mazars favored posterior rhizotomy in the treatment of the pain of angina pectoris. They carried out very few sympathectomies for hypertension or peripheral-vascular disease. During the past three years they have had a series of about eighty patients for whom they performed cervical cordotomy for pain relief. Prefrontal lobotomy is not favored particularly as a means of eliminating pain. It should be emphasized that cervical corotomy is employed only for treatment of intractable pain in the upper part of the body; the standard thoracic cordotomy is generally employed to eliminate pain in the pelvis and lower extremities. Mazars stated that they had unusually good luck in evacuating intracranial hematomas and even in securing hemastasis in some of the apoplectic cases; this neurosurgical procedure has certainly not been developed in the United States.

Jacques LeBeau, who worked with Clovis Vincent at the Hôpital de la Pitié, now directs the neurosurgical clinic at the Hôpital Boucicout. J. B. Tavernier is associated with LeBeau. There are only fifteen neurosurgical beds at this hospital which is one of the medical teaching units associated with the University of Paris. LeBeau is engaged also in a vast private practice and expects to have approximately eighty neurosurgical beds in a new hospital on the outskirts of Paris by 1951. The neurosurgical work carried out at the Hôpital Boucicout is much the same as elsewhere. LeBeau has had impressive results with cortical excision of Brodmann areas nine and ten for mental illness as well as for pain relief in cases of malignancy in that these patients had no debilitating postoperative personality alteration. He was somewhat hesitant about carrying out high cervical cordotomy bilaterally because of risk from bleeding in the spinal cord and disturbance of other than the spinothalamic tracts.

M. David is the chief neurosurgeon at the busy clinic of the Hôpital Psychiatrique Sainte-Anne. A great deal of anatomical research has been done here regarding the thalamus and adjacent hypothalamic structures. At the present, the clinic is being rearranged for greater facility. M. R. Klein who spoke at the Zürich meeting about the treatment of hydrocephalus confines his neurosurgical work largely to children. His clinic is at the Hôpital Necker Enfants Malades.

Professor Paul Martin is head of neurosurgery at the University of Brussels in Belgium. There are about thirty neurosurgical beds in this modern unit. In addition to the general neurosurgical work done, there was a special interest here in the surgical treatment of focal epilepsy. The cases were studied thoroughly on the neurological service. Electro-encephalographic records were being repeated frequently. Professor Martin emphasized that at least three years must pass without recurrences of seizures after excision of the epileptogenic cortical area before any thought of cure can be entertained. He has observed marked generalized dysrhythmia on electro-encephalographic records more than a year after removal of the cortical scar.

Certainly one of the outstanding neurosurgical centers of Europe is that of Professor Edvard A. V. Busch at the Kebenhavns Militaerhospital, Copenhagen, Denmark. This is a teaching unit of the University and has sixty neurosurgical beds.

The buildings are of a military cantonment type, the main structure being two stories. There are two large and quite modern air-conditioned operating rooms with an adjacent electro-encephalographic laboratory. Each operating room is equipped with a large portable x-ray machine having a Lysholm head attachment for ventricular and cranial x-rays as well as for cerebral arteriograms. Plans have been made for the construction of a new building with three operating rooms. It is expected that the neurosurgical clinic will remain in this military hospital for the next ten to fifteen years.

At the present, there are ten resident physicians training in neurosurgery here. Except for Doctors Lara of Argentina and Uwǎng of Formosa, the remaining are Danes. Doctor Broager carried on most of the clinical and operative work under Professor Busch. Busch has trained five neurosurgeons who hold responsible positions throughout Europe now. His present clinic has been a development over a period of seventeen years.

This is an extremely busy clinic. During the past year, 214 brain tumor operations were done here. Over the years, a series of almost 2,000 prolapsed intervertebral disks have been operated upon. There is great enthusiasm here in sympathectomy for hypertension; and also in prefrontal lobotomy for mental illness.

Professor Busch favors the bilateral supradiaphragmatic sympathectomy of Peet in relieving hypertensive symptoms such as severe headaches, particularly in the age group of about sixty years. However, he does not believe this operation is very effective in lowering blood pressure. For patients of about this age who are better operative risks, the thoracolumbar sympathectomy of Smithwick is favored. These individuals have the two sides operated upon within about ten days during the single hospital stay. Professor Busch has carried out a more radical sympathectomy approaching the thoracic trunks by the removal of portions of the sixth and the eleventh or twelfth ribs. The sympathetic trunks are removed from the fourth thoracic to the first lumbar segmental levels. More than 100 patients have had this operation during a two-year period; and it is believed that this procedure reduces the blood pressure more than the other types of sympathectomy. This form of procedure is preferred to Poppen's technique of removing the sympathetic trunk from the fourth thoracic to the fifth lumbar level because the operative shock and postoperative fatigue are less.

Most of the neurosurgical operations are done with local anesthesia here as in other European clinics. This seemed to be quite adequate for craniotomies but not for sympathectomies or spinal surgery. Bilateral prefrontal lobotomy was employed for the relief of intractable pain. All lobotomies were preceded by cisternal ventriculograms. Alcohol root injection was usually used for trigeminal neuralgia; although at times the mandibular division was electrocoagulated. If the pain recurred, then temporal trigeminal rhizotomy was done rather than the medullary tractotomy of Sjöquist which was considered more dangerous.

The surgical technique was excellent and the procedures were done with dispatch. Very adequate decompression was accomplished in cases of malignancies of the brain. Angiography was used extensively to localize cerebral lesions. If the angiogram revealed a pattern of great vascularity as that of a meningioma and the patient was not in emergent need of cerebral decompression, then x-ray therapy was given over a two- to three-week interval with a total dose of 2,000 to 3,000 roentgens in approximately 15 treatments in order to thrombose many of the vessels and greatly reduce the blood loss of tumor removal. Postoperative x-ray therapy is used only in selected cases as pituitary adenomas, cerebellar tumors of children, and certain midbrain lesions.

Professor Norman M. Dott directs the neurological surgery service at the Royal Infirmary, University of Edinburgh in Scotland. During his convalescence from an orthopedic operation, F. J. Gillingham administered the department. Sir James Learmonth is the chief of surgery at the University. Professor Learmonth has a great interest in peripheral-vascular disease and therefore the majority of the sympathetic surgery is done on his general surgery service.

Most of the neurosurgery is done at the Royal Infirmary at the present where the service has twenty beds. After a few convalescent days, the patients are transferred to Bangour, about 20 miles from Edinburgh, where eighty-five neurosurgical beds are available in a large mental hospital. Surgical facilities are now being installed in the Bangour Hospital so that operations may be done there also. A new building addition has been planned for the neurosurgical service at the Royal Infirmary.

In the Royal Infirmary, the service has two rather small and well-equipped operating rooms for the service. X-ray facilities and a separate electro-encephalogram room containing a four-channel machine are easily available. Neurosurgery is an extremely busy service here also and about 100 patients remain on the waiting list constantly for admission. Approximately 150 patients having brain tumors were operated upon last year. Because of necessity, most of the operations done are for brain tumors. Percutaneous angiograms are used commonly for diagnosis and localization. A large number of prolapsed intervertebral disk cases are operated upon; and very few spinograms are done.

The type of surgical procedure carried out for various problems is much the same as throughout the United States. As contrasted with the Continental Clinics, intratracheal anesthesia is used popularly throughout Scotland and England. A sitting position for the patient is maintained during posterior fossa cranial surgery as well as for the trigeminal rhizotomies. It was interesting to observe that while a ventriculogram is being done in a sitting position, a spinal needle is inserted in the lumbar canal for air injection so that the lower limits of the tumor may be determined from the x-rays taken. For more than eight months now, preoperative exsanguination of brain tumor patients has been done and has proven worth while. This procedure is particularly helpful in the event of vascular tumors and when the intracranial pressure is high. As much as four pints of blood is removed from the radial artery and then citrated to be ready for administration to the patient after the surgery. During the operation, the blood pressure may be about 80 mm. of mercury; the pulse as fast as 130 to 140 per minute; and the respiratory rate at 40 to 50. It is extremely important to have a high oxygen concentration administration intratracheally during this period when the circulating blood volume is decreased. During the operation, the mass of the brain is reduced and the bleeding problem of tumors is simplified. There had been no ill effects from this procedure at this clinic and the staff uses it enthusiastically.

Cerebral angiography is frequently done here. Professor Dott has a great interest in developing a surgical treatment for aneurysms of the posterior or basilar circulation; and for this reason vertebral arteriograms are done often. It was interesting to learn that favorable results had been obtained from unilateral prefrontal lobotomy done on the dominant side for the treatment of intractable pain. The operative care of brain tumors seemed to follow the standard pattern. Radiation therapy for these lesions is not used much.

The National Hospital for Diseases of the Nervous System in London was visited during this tour again. This is actually the largest clinical British postgraduate center for neurology and neurosurgery. Sir Charles Symonds directs the neurological division. Wylie McKissock is the chief of neurosurgery and is aided by Harvey Jackson. All of the medical staff here are of the graduate school status or higher. This is in contrast with other teaching hospitals of London which are concerned largely with the medical undergraduates as well as with those studying in the specialties. Many of the doctors who come here for their advanced training in neurosurgery are already qualified by the Royal College of Surgeons in general surgery. The neurosurgical service here has forty-five beds. The facilities are very modern; and there are two air-conditioned operating rooms. There are four graduate fellows on each of the neurological and neurosurgical divisions. Very few psychiatric patients are cared for in this hospital which has a total bed capacity between 200 and 300.

Mr. McKissock was on vacation during this visit, leaving Mr. Jackson in charge. Except for the vacation periods, McKissock operates here three days a week, and Jackson operates during two days. Approximately 350 brain tumors a year are operated upon here. Intratracheal anesthesia is used extensively. The preoperative exsanguination as carried on at Edinburgh is not favored because of fear of cerebral anoxia.

The Smithwick operation for hypertension is standard here. Alcohol root injection is used for trigeminal neuralgia prior to consideration of rhizotomy. The transtemporal operation is the one done if necessary. The trigeminal tractotomy of Sjöquist done in the brain stem is not carried out except in special cases because this staff is as hesitant as that at Edinburgh because of the complications. It was a pleasure to see how expertly trigeminal rhiztomy was done here with local anesthesia in the debilitated and aged patients. Prefrontal lobotomy has not met with favor here as a means of obliterating intractable pain. However, this procedure is employed extensively for mental disease and the Freeman-Watts technique is used.

The impression gained after visits to this hospital during two different trips is that the neurosurgical work done is fast and excellently carried out. A great practical sense is used in dealing with the various problems. It is definitely one of the better places for a touring student to stop.

Professor D. W. C. Northfield is the head neurosurgeon at the London Hospital. There are about fifteen adult neurosurgical beds and an additional variable number of patients are on the neurological, pediatric, and general surgical services. In addition, there are about twenty neurosurgical beds at the country annex hospital at Brentwood which is chiefly a children's hospital.

There are four active operating days a week at the London Hospital. About seventy-five to 100 brain tumor patients are operated upon each year. The one operating room, although not modern, is well equipped. The prolapsed intervertabral disk surgery and various types of sympathectomies are done on this service. The staff had changed from the more radical thoracolumbar sympathectomy of Poppen to that of Smithwick. In the treatment of trigeminal neuralgia, injection of alcohol was made into the gasserian ganglion. When pain recurred, the transtemporal trigeminal rhizotomy was done. Professor Northfield had reluctance about using the Sjöquist tractotomy except in special instances. During this visit Professor Northfield operated upon his sixth case of frontal osteoma. The patients having this rare condition ordinarily come for medical aid because of empyema of one of the sinuses. Skull x-ray examination reveals both the presence of a sinus opaque because of empyema as well as an osteoma growing into the sinus to prevent the outflow of drainage. The osteoma ordinarily tends to grow from the floor of the frontal or ethmoid sinuses and pushes the sinus mucosa during its growth. He emphasized the great need for immediate removal of these lesions to prevent the effects of progressive intracranial infection.

Sir Geoffrey Jefferson is the professor of neurosurgery at the Manchester Royal Infirmary. This is a free hospital that serves a densely populated industrial and farming area; and is an excellent teaching institution. The neurosurgical bed capacity is quite limited with 17 for females and 15 for males. This limiting factor has caused the neurosurgical patient waiting list for admission to increase to a present number of about 450. The operating theater is used for four days each week. It was estimated that between 150 and 200 brain tumor patients are operated upon here each year.

In addition to Professor Jefferson, there are five members of the neurosurgical attending and house staff. A modern air-conditioned operating and x-ray suite has just opened here. One large room and two small rooms are employed for surgery. The entire unit is on the ground floor and is very practically arranged. Most of the patients are housed in two large wards, and some small adjacent rooms. Most of the diagnostic work is done on the neurosurgical service. An entire afternoon each week is used for seeing outpatients. Professor Jefferson attends this clinic and examines many of the patients himself taking great pains to be instructive about many puzzling problems. This was one of the most impressive teaching clinics visited on this tour.

Because of the large surgical load, most of the operative procedures are for the tumor patients. An extensive use is made of carotid angiography for localization. Obviously malignant gliomas of the brain diagnosed by the typical vascular pattern on cerebral arteriography or biopsy done through a cranial trephine hole are not operated upon with a formal craniotomy and the removal of a large amount of the tumor. It has been found more valuable to employ the few available beds for patients with more curable conditions. The prolapsed intervertebral disks cases are operated upon by the neurosurgeons. The sympathetic system surgery is done on the general surgical service.

The surgical technique was meticulous. The various operative procedures done were much the same as in the American Clinics. Intratracheal anesthesia was used principally for the cerebellar operations. Most of the cerebral surgery was carried out under general anesthesia because it was believed that rebreathing through the intratracheal tube caused increased intracranial pressure. Spinal anesthesia was used in prolapsed disk surgery. Dr. Hunter of the anesthesia department employed venous pressure measurement rather than the recording of arterial blood pressure and pulse rate to ascertain the condition of the patient during surgery. He has found that the changes in venous pressure reflect more quick-

(Continued on Page 354)

Case Report

THE EFFECT OF SOME OF THE USUAL CARDIAC DRUGS IN REGARD TO AN INTERMITTENT DELAYED INTRAVENTRICULAR CONDUCTION

HENRY L. ULRICH, M.D. and GASTON SAUVE, M.D.
Minneapolis, Minnesota

M. K., aged fifty-two, a paperhanger and painter, and a highly nervous individual, reported in August, 1950, to the private office, with the following complaints: Since March, 1950, he had had a heavy feeling or congestion in his chest when walking against the wind or after severe exertion. He experienced dizzy spells particularly when waking up in the morning. There was a weight loss of 20 pounds in two months.

His family history was noncontributory except that his father died at seventy-nine of heart failure. His past history elicited three attacks of pneumonia in his adolescence and tonsillectomy at age eleven. He is married; the wife is healthy, and two children are living and well, the younger aged twenty-seven.

In August, 1950, physical examination was practically negative with the exception of blood pressure which read 180 over 100. His blood, urine and electrocardiogram were normal. Renal function was normal. X-ray examinations showed the gastric tract to be normal and functional test of the gall bladder gave normal results. On the day he left the office, in August, he had been injured in a collision with an automobile. The left elbow and left knee were traumatized. The patient was badly shaken up. Following this accident he took a rest of two weeks and in an attempt to go to work he found it was impossible to do so. He was then hospitalized for rest and observation. On admission at the hospital, no new findings were determined except that he was unduly nervous, exhibited variable blood pressure readings, although completely at rest, also anginal symptoms. His electrocardiogram now showed delayed intraventricular conduction resembling right bundle branch block in all leads and distributed irregularly or intermittently between normal complexes (Fig. 1). The house officer (G.S.) became very much interested in this variation of conduction. After several observations, it occurred to us that we might use serial readings to observe the action of different drugs given usually to patients with coronary insufficiency or infarction. The problem that presented itself was that we were dealing with a case of coronary insufficiency which had an area or focus of ischemia or fatigue in the myocardium; this area functioned normally for a few cycles and then again abnormally for a few cycles. The anatomical area of this focus was assumed to be on the septum along the right bundle.

The drugs used were nitroglycerine; oxygen by Boothby's masks, ninety minutes; aminophyllin 3½ grains intravenously; oxygen for twenty-four hours in a tent; papaverine grains 1 intravenously; 1 ounce of brandy orally; atropine grain 1/100 subcutaneously. There were two physical tests, valsava and exercise.

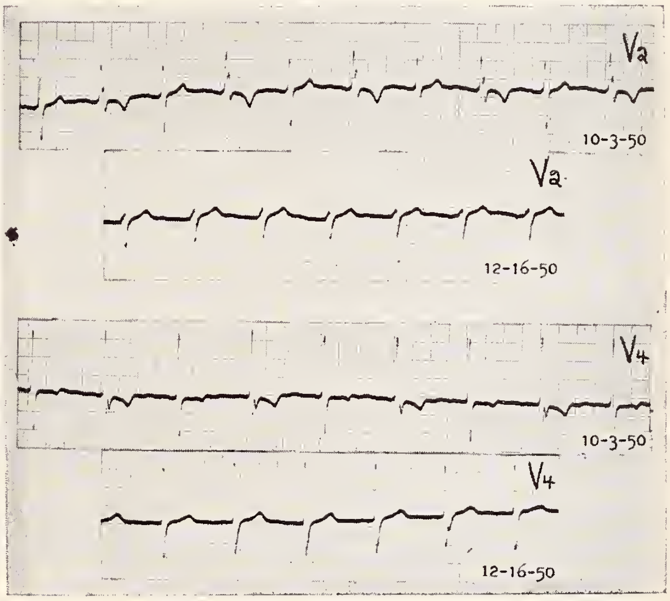

Fig. 1. These tracings illustrate clearly the intermittence of the intraventricular conduction defect as well as the improvement over a period of two months' rest.

We cannot draw any conclusion from these observations. They are reported to call attention that occasionally the opportunity arrives such as this one in which the effect of drugs can be studied at the bedside rather than in a laboratory.

We can call attention to the fact that during the period of observation (see the protocol and charts), this man's conduction system improved with rest (Fig. 2); that oxygen, aminophyllin, nitroglycerine and papaverine modified temporarily the conduction system in this man.

No correlation can be seen between the rate and the constancy of the one-to-one ratio or the disappearance of the abnormality in the ventricular conduction; but at a rate of 62 per minute or less, the so-called BBB is always absent, and likewise the ratio of one-to-one is constant at the rate of seventy-five per minute.

These observations corroborate the clinical concept

Dr. Ulrich is Visiting Physician to Northwestern Hospital, Minneapolis.

Dr. Sauve is House Physician, Northwestern Hospital.

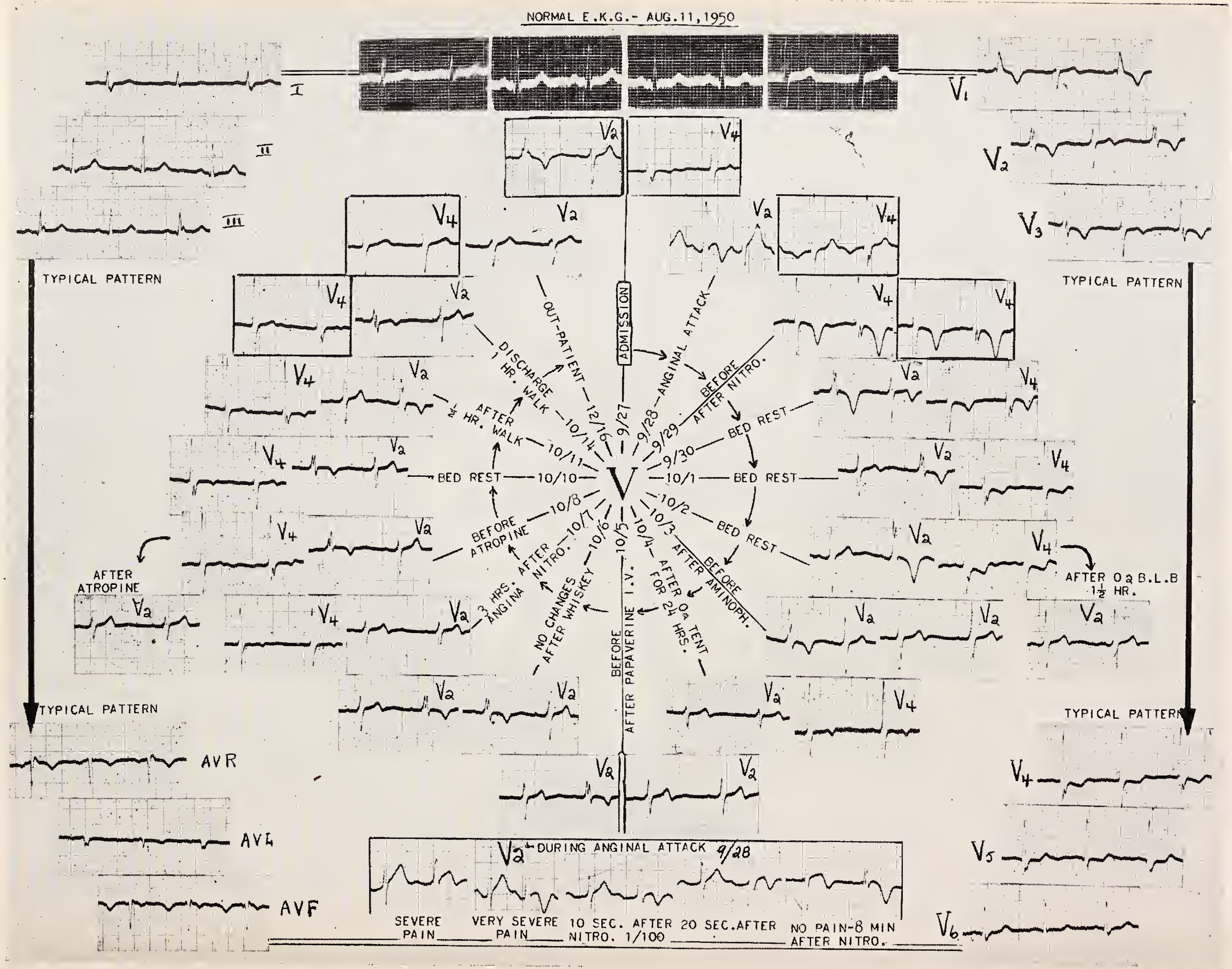
NORMAL E.K.G.- AUG.11,1950
I
II
III
V1
V2
V3
TYPICAL PATTERN
TYPICAL PATTERN
TYPICAL PATTERN
TYPICAL PATTERN
AVR
AVL
AVF
V4
V5
V6
ADMISSION
9/27
9/28—ANGINAL ATTACK
9/29 BEFORE AFTER NITRO.
9/30 BED REST
10/1 BED REST
10/2 BED REST
10/3 BEFORE AFTER AMINOPH.
10/4 AFTER O2 TENT FOR 24 HRS.
10/5 BEFORE AFTER PAPAVERINE I.V.
10/6 NO CHANGES AFTER WHISKEY
10/7 AFTER NITRO. 3 HRS. ANGINA
10/8 BEFORE ATROPINE
10/10 BED REST
10/11 AFTER ½ HR. WALK
10/14 DISCHARGE 1 HR. WALK
12/16 OUT-PATIENT
AFTER ATROPINE
AFTER O2 B.L.B 1½ HR.
V2
V4
V2 DURING ANGINAL ATTACK 9/28
SEVERE PAIN
VERY SEVERE PAIN
10 SEC. AFTER NITRO. 1/100
20 SEC. AFTER
NO PAIN-8 MIN AFTER NITRO.

Fig. 2. Diagram showing the chronological evolution of leads V2 and V4 over a period of eighteen days while patient was hospitalized and also after two months of convalescence. V2 and V4 were chosen as they show more clearly what the other leads did also register. A typical pattern of the intermittent intraventricular delayed conduction is shown in the four corners. Above, the normal E.C.G. and below, serial tracings of V2 during an anginal attack.

that these drugs are of value temporarily, if not permanently, in the treatment of coronary disease.

Protocol*

August 11, 1950—Normal E. C. G.

Sept. 27, 1950—Rate 71/min. Right BBB?—Intermittent. The ratio of normal complexes to abnormal ones is inconstant. The so-called normal complexes show a positive T in V leads.

Sept. 28, 1950—Rate 88/min. Tracing taken while the patient had a retrosternal anginal type of pain, as well as after a nitroglycerine tablet, gr. 1/100 had been given S. L. Intermittent right BBB with inconstant ratio. V2-3-4 showed a positive T in the so-called normal QRS pattern until 8 minutes after cessation of pain by the nitroglycerine at which time they all became negative. The QRS complexes of V 2 also became more notched 8 minutes after cessation of pain.

Sept. 29, 1950—Rate 75/min. Intermittent right BBB with constant ratio of 1 to 1. T 1 of normal patterns is now isoelectric. The ratio of 1 to 1 was changed to an inconstant one by having the patient take a deep breath. T V 4 is now deeply negative. While patient was feeling well, a nitroglycerine tablet gr. 1/100 was given S. L. and tracings and B.P. were taken simultaneously 15 seconds—1 min -2-3-8 minutes after and no appreciable changes in V 4 and the B.P. were noted.

Sept. 30, 1950—Rate 83/min. BBB constant at a ratio of 1 to 1. In the so-called normal complexes TV 1 diphasic TV 2 -V3 still negative and TV 4 less negative than on Sept. 29, 1950.

Oct. 1, 1950—Rate 75/min. BBB constant at a ratio of 1 to 1. TV 1 and TV 2 diphasic. TV 3 less negative than on Sept. 30, 1950. TV 4 now diphasic.

Oct. 2, 1950—Rate 83/min. BBB constant at a ratio of 1 to 1. TV 1 and TV 2 now positive. TV 3 now diphasic. After 1½ hours of O_2 by Bt. B. Mask—6 liters (Rate 71). The only BBB present are seen in Lead III (Rate 75). No remarkable changes in T waves.

Oct. 3, 1950—Rate 75 to 83/min. BBB still constant at a ratio of 1 to 1. TV 3 — TV 4 still diphasic. The V 2 lead was taken before I.V. injection of aminophyllin grs 3.¾ and at the following intervals: during injection as well as 2-3-4-5 and 10 minutes after. Rate 10 min. after I.V.—60/min. TV 2 was positive until 2 min. after injection at which time it became diphasic. The BBB disappeared 5 min. after injection and was still absent 10 min. after.

Oct. 4, 1950—Rate 62. This E. C. G. was recorded after patient had been in O_2 tent for 24 hours—8 liters. No BBB noted. TV 4 again became negative.

Oct. 5, 1950—Rate 70 to 75. BBB disappeared by having the patient hold his breath in deep inspiration (rate 65). Papaverine grs. 1 was given I. V. and tracings were taken at the following intervals: during I. V. 1 Min. -2-3-7-20-21-22 minutes after. The BBB disappeared after 7 minutes (rate 63) until 21 min.—at which time it recurred (rate 68) and again was not recorded on the "22 Min" tracing (rate 68).

Oct. 6, 1950—Rate 75. BBB still present at a ratio of 1 to 1. A tracing was taken 30 min. after ingestion of one ounce of 84 per cent proof brandy and no changes were observed. Rate after -75.

Oct. 7—Rate 65. Patient had a precordial dull pain at 8:30 A. M. and a nitroglyecrine tablet gr. 1/100 was given S. L. This tracing was registered at 11:45 A. M. BBB is very inconstant and is present for a few beats in leads AVR-AVL-V 1-V 2-V 3, TV 4 is less negative than on Oct. 4, 1950.

Oct. 8, 1950—Rate 68. BBB disappeared spontaneously in lead AVL-AVF -V 1 and part of V 2. TV 4 now diphasic. Immediately following this tracing, the following test was done—Atropine SO_4 gr. 1/100 was given S. C. and recordings were taken at the following intervals: 2 sec. after—2 min. after 4-5-10-12-14-16. The BBB disappeared after 5 min. (rate 62) and reappeared in the 12 min. tracing and was constantly present at a ratio of 1 to 1 from 14 min. (rate 71) thereafter.

Oct. 10, 1950—Rate 75. BBB constant at a rate of 1 to 1. TV 4 still diphasic.

Oct. 11, 1950—Rate 83. Patient had been walking intermittently for a half hour. BBB constant at a ratio of 1 to 1. TV 4 still diphasic.

Oct. 14, 1950—Rate 79. Patient had been up and around for one hour. No changes.

Oct. 15, 1950—Patient discharged from hospital.

Dec. 16, 1950—Rate 83-88. BBB inconstant. Tracing taken 2 months after restricted activities, no work permitted.

Acknowledgment

We are grateful to Mr. Russell Nye, Superintendent of the Northwestern Hospital, for sanctioning some of the expense of this study.

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*Owing to the number of tracings only certain ones are used to show the effect of the respective drugs.

UNUSUAL PYODERMAS

(Continued from Page 325)

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History of Medicine In Minnesota

MEDICINE AND ITS PRACTITIONERS IN OLMSTED COUNTY PRIOR TO 1900

NORA H. GUTHREY
Rochester, Minnesota

(Continued from the March issue.)

In the maintenance of public health and welfare through preventive medicine Dr. C. H. Mayo played a major part. Throughout his career he was a proponent of dentistry, recognizing that dental infection often is the cause of general systemic infection and of disease; because of his untiring work he was recognized by honorary membership in the great dental societies. From 1900 he was for many years a member of the Minnesota State Board of Health, during which he worked for legislation to further the purposes of public health. From May 1, 1912, until he resigned after twenty-five years of able work, he was health officer or a member of the Public Health Commission of Rochester, directing its work in relation to tuberculosis, undulant fever and other diseases carried by contaminated milk and other foods. He aided in securing the first modern sewage disposal plant of Rochester, one of the first of such plants in the state. A novel contribution concerned with the collection and use of garbage was his purchase and presentation of the hog farm to the city of Rochester. By selection and feeding of garbage collections from city residences and institutions, it has been possible to raise feeder pigs, the income from which has contributed in large measure to the support of the public health work in Rochester.

The name of Mayo for more than eighty years has been identified in Rochester with civic improvement. When the long-envisioned Mayo Civic Auditorium was to become a reality (1938-1939) and Dr. Charles H. Mayo reluctantly allowed his name to appear as donor, with the Mayo Properties Association and without the specified name of his brother, Dr. William J. Mayo, he made his attitude clear; on July 28, 1939, when he spoke at the laying of the cornerstone, he said, "I wish to say, first of all, that the gift is a family affair," and proceeded to explain his brother's part.

The unity of the Mayo brothers cannot be overvalued. Not long after Dr. W. J. Mayo gave up surgery, Dr. C. H. Mayo relinquished the work because of failing health, and it was obvious that the two found comfort in the fact that they shared this partial retirement.

Dr. C. H. Mayo with his brother established the Mayo Foundation for Medical Education and Research, in affiliation with the University of Minnesota, and a few years later the brothers created the Mayo Properties Association; the function of the two organizations is a matter of public record. When changes in administrative policy were indicated in the clinic and foundation, the brothers were in accord.

Although in the last years of his life a succession of illnesses so reduced

Dr. C. H. Mayo's strength that he was obliged to withdraw from his former activity, he came daily to the clinic when he was able, visited all departments informally and was accessible to the many who wished to see him. In the late spring of 1939 he went to Chicago and it was there, after overexertion, that he succumbed to pneumonia, at the Mercy Hospital, on May 26. He died without regret, happy in the devotion of family and friends and in the knowledge of work well done. He had lived abundantly.

On July 26, 1943, Edith Graham Mayo, aged seventy-two years, died at St. Mary's Hospital, Rochester, after a long illness. The death of the younger son, Dr. Joseph Graham Mayo, had occurred seven years previously, by accident, on November 9, 1936.

In 1947 the survivors of Dr. Charles Horace Mayo were a son, Dr. Charles W. Mayo, of Rochester, Minnesota; four daughters, Dorothy Mayo and Louise Mayo (Mrs. L. Arlin) Elwinger, both of Rochester, Edith Mayo, wife of Dr. Fred W. Rankin, of Lexington, Kentucky, Esther Mayo, wife of Dr. John B. Hartzell, of Detroit, Michigan; an adopted daughter, Marilyn Mayo (Mrs. Ralph S.) Mason, in California; and a foster son, John Nelson, of Johnson City, Tennessee. There were twenty-four grandchildren.

Dr. Charles W. Mayo, with the Mayo Clinic since 1927, is head of a section in surgery in the clinic and professor of surgery, the Mayo Foundation; during World War II he served as colonel in the Medical Corps of the Army of the United States, first as unit director of the 71st General Hospital, and subsequently in other hospitals, general and station, all affiliated units of the Mayo Clinic in New Guinea and the Philippine Islands, and as consulting surgeon to the Army Forces of the Western Pacific. Dr. Fred W. Rankin was with the Mayo Clinic from 1916 to 1933, the last seven years as head of a section in surgery; since 1933 he has been in Lexington, Kentucky, chief surgeon to St. Joseph's Hospital of that city; during World War I he served as major with the American Expeditionary Forces; during World War II he served in uniform nearly four years, with the grade of brigadier general, as chief surgical consultant to the Army of the United States; he has the Distinguished Service Medal and is entitled to ribbons for service in various theaters of the war; he was wartime president of the American Medical Association. Dr. John B. Hartzell entered the Mayo Foundation in July, 1927, as a transfer fellow in surgery from the Graduate School of the University of Minnesota; since October, 1930, he has been practicing in Detroit, Michigan; he is assistant professor of clinical surgery, Wayne University College of Medicine, director of surgery, the Charles Godwin Jennings Hospital, and attending surgeon, the Receiving Hospital; during World War II he served as commander in the United States Navy, in naval hospitals in the United States and as medical officer aboard an attack transport with the Amphibious Force in the South Pacific.

Simeon Paul Meredith (1852-1930), homeopathic physician, a graduate of the Hahnemann Medical College and Hospital, in Chicago, was from 1882 until his death a respected practitioner and citizen in various places in southern Minnesota: Austin, Grand Meadow, Spring Valley, Pleasant Grove, Windom, Garden City and Mankato. Full biographical notes on Dr. Meredith appeared in a history of medicine in Fillmore County prior to 1900 (Guthrey). Dr. Meredith held an exemption certificate in Minnesota.

The present entry serves to establish Dr. Meredith's association with Olmsted

County. In February, 1899, he removed with his family from Spring Valley, Fillmore County, where he had spent ten years, to Pleasant Grove, to assume the practice of the late Dr. Marshall T. Bascomb, who had died on January 28, 1899. He succeeded Dr. Bascomb as county physician for the village and the township of Pleasant Grove. In the autumn of 1902 he left Pleasant Grove for Grand Meadow, Mower County.

Dr. Meredith died at his home in Mankato on September 1, 1930, after many years of failing health.

Melvin C. Millet (1868-1907) was born on September 22, 1868, in Sumner Township, Fillmore County, near the village of Hamilton, the son of Mr. and Mrs. Roscoe G. Millet. He had two sisters, Rose and Roby, and one brother, Frank.

Melvin C. Millet spent the first twenty-one years of his life in Sumner Township, attending district school and working on his father's farm. In his twenty-second year, determining on professional education, he began two years of study at the Winona Teachers College, on completion of which he taught district school one year. In 1892, on the advice of his uncle, Frank W. Millet, of Rochester, and with the encouragement of Dr. Rollo C. Dugan, of Dover, Olmsted County, he read medicine for one year with Dr. Dugan and accompanied the doctor on country rounds, both as driver of the horses and as clinical observer. In the autumn of 1892 he entered the medical school of the University of Minnesota, from which he was graduated with high honors in June, 1895; he was licensed by examination in Minnesota on June 11, 1895, receiving certificate No. 529 (R).

The scene of Dr. Millet's first medical practice was Dover, a typical New England village set down in the Middle West, the opening having been held for him by Dr. Dugan, who had removed to Eyota in 1892, when Dr. A. W. Stinchfield left Eyota to join the Drs. Mayo in Rochester. Dr. Stinchfield has been quoted as saying that the community was "too rascally healthy" to make Dover a profitable location for medical practice and so Dr. Millet found it. After a year and a half he joined his old friend and college classmate, Dr. Milan J. Hart, who had been a Dover boy, in partnership in Le Roy. In late 1898 the Drs. Mayo, Graham and Stinchfield invited Dr. Millet to join them as resident physician at St. Mary's Hospital, in Rochester, and in November of that year he became a member of the staff.

A man of fine character and intellect, warm and sympathetic humor and sound training, Dr. Millet soon became one of the physicians in charge, and in the few remaining years of his life achieved a record of sincerity of purpose and scientific accomplishment. Although one of his first and least congenial tasks at St. Mary's Hospital was to record operative findings, with clinical notes, in the huge ledgers then used as case books, it was his diagnostic ability together with his knowledge of physiologic chemistry and his skill in the technic of gastric analysis that had brought him to the attention of the Mayo group. In Rochester he not only continued his already notable work in analysis of gastric contents but also made a study of gastric ulcer and its differential diagnosis. Concurrently, in Dr. Millet's original work the section on urology of the potential Mayo Clinic had its beginning: he studied the possibilities of exact diagnosis in renal disease and was one of the earliest cystoscopists to use and advocate the direct-view cystoscope and was the first to apply the principles of a water medium in this type of cystoscope. Until a few months before his death he did all of the cystoscopic work, setting the high standard that afterward was maintained. His scientific papers, particularly those on renal disease and cystoscopy, attracted attention throughout the country and were perhaps the most precise and comprehensive to come from Rochester at that time. He had special interest in the diseases of children. Although Dr. Millet died before a formal section on pediatrics had been established in the clinic, he has been credited, with Dr. Henry S. Plummer (his second cousin), with recognition of changes that were coming and that should come in the treatment of the diseases of children; reminiscences preserve some of the comments of these two men on the subject. Dr. Millet still is recalled with affection and esteem for his devotion to his patients, especially to the little children in the wards. It is worthy of note that this man of practical background often said that the farming communities of the Northwest were the backbone of the group practice that soon was to be called the Mayo Clinic.

Dr. Millet became a member of the Southern Minnesota Medical Association in 1895, of the Olmsted County Medical Society in 1896 (once its secretary), the Minnesota State Medical Society in 1899 and soon afterward of the American Medical Association.

On June 12, 1901, Melvin C. Millet was married to Mary A. Frick, of Minneapolis, a daughter of Mr. and Mrs. Thomas W. Frick of that city. Dr. and Mrs. Millet had one son, Roscoe Frick Millet, who was born in Rochester on May 30, 1905.

When Dr. Melvin C. Millet died at his home in Rochester from Bright's disease on May 7, 1907, in his thirty-ninth year, his brilliant professional career had measured only twelve years. In his death the medical profession sustained an incalculable loss. Dr. Millet was survived by his wife, his son and his parents; two sisters, Rose Millet (Mrs. McGhie) of Fillmore County, and Roby Millet (Mrs. Austin) Kiser, of Glendive, Montana; and his brother, Frank Millet, of Salem, Oregon. Mary Frick Millet was married in 1911 to John L. Magaw, of Rochester; Mr. Magaw died in 1926. In 1950 Mrs. Magaw continued to make her home in Rochester.

Roscoe F. Millet followed in his father's profession and was graduated in 1930 with the degree of doctor of medicine from Northwestern University. He was a fellow on the Mayo Foundation, in Rochester, from July, 1930, to July, 1934. He was married to Lael Shea on October 9, 1934; Dr. and Mrs. Millet have two daughters, Margaret and Mary. Licensed in Illinois in 1938, Dr. Millet has practiced in Macomb, Illinois, since 1942. During World War II he was a lieutenant colonel on duty at the Mayo General Hospital at Galesburg, Illinois.

George Wilbur Moore (1870-. . . .) was the thirteenth appointee, as an assistant physician, to the staff of the Second Minnesota Hospital for Insane, at Rochester, Olmsted County. He came as an intern shortly after his graduation in June, 1892, from the medical school of the University of Minnesota, and when Dr. Eric O. Giere, an assistant physician, left the hospital to enter private practice, Dr. Moore was promoted to assistant physician. Within a week of his arrival in Rochester, by unanimous vote he became a member of the Olmsted County Medical Society. On his leaving the hospital in July, 1893, he was succeeded on the staff by Dr. Cyrus E. Eby.

Born at Moore's Hill, Indiana, on August 8, 1870, George Wilbur Moore was the son of Benjamin Franklin Moore and Florence Virginia Wilbur Moore. In boyhood he came with the family to Minnesota. He was graduated from the Central High School, Minneapolis, the University of Minnesota, and subsequently took postgraduate work at the Bellevue Hospital Medical College, New York. On leaving Rochester in 1893 Dr. Moore practiced medicine and surgery six months in Minneapolis before settling in Hatton, Traill County, North Dakota, where he remained three years.

From 1896 into 1934 Dr. Moore was in active medical practice in Hopkins, Hennepin County, Minnesota. On his retirement, on his birthday in 1934, the city and community of Hopkins honored him as a beloved physician and representative citizen. In 1946 he continued to make his home in Hopkins: a member of county, state and national medical associations; a Republican and past mayor of the city; long a worker for conservation of the forests and wild life of the state; a member of the Minnesota State League of municipalities, and of fraternal organizations, among them the Masons, Knights of Pythias and the Benevolent and Protective Order of Elks. His hobbies have been floriculture, gardening, fishing, hunting and travel.

Dr. Moore was married on June 27, 1894, to Charlotte E. Bell, of Minneapolis; of this marriage there were two sons, John Wilbur and Richard Watts Moore. A second marriage took place on February 22, 1906, to Emily Josephine Yeager, of St. Paul; there was one child of this marriage, George Wilbur Moore. This son and John Wilbur Moore were not living in 1946.

Frederick Richard Mosse (1855-1920) was for nearly fifty years a highly respected citizen and physician of Rochester, Olmsted County, and for many years of that period county coroner and city health officer.

Born near Sun Prairie, Dane County, Wisconsin, on November 1, 1855, Frederick Richard Mosse was the son of Ira Mosse and Eliza Love Mosse. He received his early education in the district school and the village school of Sun Prairie, in the latter of which he came under the tuition of Ellen Sabin, later the head of Milwaukee-Downer College, who helped and encouraged him. At the age of thirteen years he matriculated at the University of Wisconsin, from which he was graduated in 1874 with the degree of bachelor of philosophy. After a few months of study under Drs. Bowen and Ingman, of Madison, in 1874 he entered the Hahnemann Medical College and Hospital of Chicago. In 1876, when the Chicago Homeopathic Medical College was founded by a group of physicians who had withdrawn from the faculty of Hahnemann, he transferred to the new school, and from it, in 1877, received the degree of doctor of medicine. In later years he took postgraduate work at Rush Medical College and the Chicago Policlinic.

Immediately after graduation, in March, 1877, Dr. Mosse began practice in Rochester, with an office in the Graham Block on Broadway. After a few weeks he entered partnership with Dr. W. A. Allen, in offices in the Leland Block, at Broadway and Third Streets, a location that he retained although the partnership was dissolved on July 1, 1879.

In November, 1877, Dr. Mosse was elected coroner of Olmsted County, a capacity in which he served until 1910, with the exception of two terms, 1881-1882 and 1895-1896. In 1878, as city health officer, he began his active career in furthering public health: as secretary of the city board of health, 1883-1886; city health officer, 1887-1897; and member of the state board of health. For many years he was examiner for the Northwestern Life Insurance Company of Milwaukee and for the Travelers Life and Accident Insurance Company of Hartford, and he served a considerable time on the local board of the United States Bureau of Pensions.

Dr. Mosse was licensed in Minnesota on November 24, 1883, under the medical practice act of that year, receiving certificate No. 399 (H). Although in earliest years he practiced general medicine and surgery, he soon concentrated on internal medicine. As were his contemporaries, he was called on for special attention to catarrh, which he treated with atomizers, and to tuberculosis, for which, in the eighties, he used Bergeron's method of treatment. Soon after 1900 he became a member of the Southern Minnesota Medical Association, the Olmsted County Medical Society (on the proposal of Dr. Christopher Graham), the Minnesota State Medical Association and the American Medical Association.

A cultured, studious man, Dr. Mosse had a comprehensive library, was interested in collecting fine china, Indian baskets and pottery, and in growing beautiful flowers. He was a Republican, a charter member of Beta Theta Pi fraternity, an active member of the Knights of Pythias, and of the Congregational Church, and he was several times president of the Men's Sunnyside Club of Rochester. In the pre-automobile years of his widespread practice, from Rochester to Pine Island and to Chatfield, he kept sixteen horses, some of which were of racing stock, although most of them were sturdy roadsters. When roads were heavy or when epidemics of disease were current in the countryside, he sometimes employed a driver, but as a rule he preferred to handle the reins himself.

On January 12, 1881, Frederick R. Mosse was married to Flora L. Hurd, a native of Canada and daughter of Moses Hurd, who was born in Oneida County, New York, and Lavinia Hall Hurd, born in St. Catherine's, Ontario; Mr. and Mrs. Mosse came in 1856 to Rochester. Mr. Hurd was long a business man and civic officer of the community; he and his wife both died in 1892. Flora Hurd Mosse was a talented musician, prominent in the social and musical circles of the city. Dr. and Mrs. Mosse for many years, after 1888, made their home in their handsome brick house on Franklin Street. They had one child, Frederick Hurd Mosse.

Dr. Mosse died at his home on December 26, 1920, in the fiftieth year of his professional career. Reliable, conservative, kind, he has been characterized as always "there"; his patients never left him. He was survived by his wife, who died in 1934, and his son. Frederick Hurd Mosse, an architect of Rochester, was married to Inez Thompson, of Preston, Minnesota; Mr. and Mrs. Mosse have one daughter, Elizabeth Anne. During World War II Mr. Mosse served three years with the United States Army Engineering Corps.

Leland H. Munger, born in 1857, a graduate of the Medical College of Missouri in 1879, came from Stearns County, Minnesota, to Eyota, Olmsted County, in the spring of 1881 and established his home and office in a building opposite the schoolhouse. In commenting on the arrival, the *Rochester Post* stated that he had had a degree of experience in the profession that should recommend him to the people of that vicinity.

After a few months in Eyota Dr. Munger went to St. Charles and then to Winona, both in Winona County. Evidently he returned to Stearns County, for when he received state license No. 471 (R), on December 28, 1883, he was living in Fairhaven. Although the year has not been learned, sometime between 1890 and 1895 he again joined the medical profession of Winona and became a member of the Winona County Medical Society, and of the state and the national medical associations. His name appeared in the directory of the American Medical Association for the last time in the edition of 1912.

William Netter (1853-1933), a graduate of Rush Medical College in 1877, came to Rochester, Olmsted County, as physician and surgeon in the summer of 1878, and for his first few months in the city had office space with Dr. W. W. Mayo on Broadway. Early in 1880 Dr. Netter went abroad for a year's professional study in Munich and Paris, and on his return he again practiced in Rochester until March, 1882, when it was announced that he was removing to Minneapolis.

In notes on early decades of medicine in Winona County, however, it was stated that Dr. William Netter, from Rochester, settled in Winona in April, 1882, and also that a William Netter in the eighteen sixties had been engaged in the drug business with Dr. Wedel in Winona. William Netter, of the present sketch, was a boy in his early teens in the late sixties.

During his residence in Rochester the local newspapers mentioned Dr. Netter occasionally in relation to his various activities as practitioner; as member of the Scandinavian Literary Society, before which he occasionally gave declamations; as introducer, at Library Hall, of an atheistic speaker whose subject was "The man and the atheist in the struggle of life."

In January, 1883, the editor of the *Record and Union* of Rochester having received a call from Dr. Netter, commented that the doctor then was engaged in a thriving practice in Le Sueur. Notes on medicine in Nicollet County (unpublished, 1947) indicate that Dr. Netter was in Le Sueur only a few months. In the *Official Register of Physicians of Minnesota* of 1883-1890, Dr. Netter was listed as in St. Paul. According to the directory of the American Medical Association of 1906 he was licensed in Wisconsin in 1903, and there is evidence that from 1903 until his death he was a resident of Milwaukee.

Dr. Netter died at the Evangelical Deaconess Hospital in Milwaukee on July 20, 1933, of myocarditis, aged seventy-nine years.

Dr. Nichols, of uncertain professional rating, whose name appeared often in the newspapers of Rochester, Olmsted County, between 1860 and 1865, was one of the firm of Wheeler and Nichols, and later of Nichols and Cotter, stage proprietors, who ran a line of stage coaches from Brownsville, on the Mississippi River in Houston County, through Rochester and west to Mankato and Blue Earth City. This "doctor," frequently in Rochester, was at one time a resident of Albany, Wisconsin.

George W. Nichols, a graduate of the Vermont Academy of Medicine (Castleton Medical College) in 1861, came with his wife and family to Rochester, Minnesota, in the late summer of 1871 and remained nine years in active general practice. He first had his office and residence combined at the corner of Fourth and Main Streets; in November, 1872, he bought a home on the northwest corner of Prospect and Fourth Streets, where the city post office now stands (1947), and thereafter had his office on Broadway.

The consensus of those citizens of Rochester who recall Dr. Nichols is that he was "a nice man, a good doctor, an all around good fellow," who had an extensive practice. He is remembered as of medium height, rather stout, with brown eyes and light brown hair tinged with gray, and as genial, kindly and reliable. He and his wife were workers in the Methodist Church. Married in 1864, Dr. and Mrs. Nichols observed their tenth, or tin, wedding anniversary in Rochester on November 1, 1874, when their friends presented them "with everything in the line of tinware." Mention has been observed of two children of the family, a little daughter Edith, and a son who was born in Rochester on July 18, 1872.

Soon after his arrival in Rochester Dr. Nichols was elected to membership in the Olmsted County Medical Society (its secretary, 1874) and became a member of the Minnesota State Medical Society at the fourth semi-annual meeting, which was held at Rochester on June 11 and 12, 1872. In the autumn of 1874 he was elected coroner of Olmsted County and was still in office when he left the city in June, 1880; he was replaced as coroner by Dr. E. T. Sedgwick. Dr. Nichols was a county physician, also, and from April, 1875, into 1880 he was a member, sometimes the secretary, of the city board of health. He was active in the Independent Order of Odd Fellows and in Ashlar Lodge No. 23 of the Ancient Order of United Workmen; in January, 1878, as a retiring officer of the latter society, he was the recipient of a handsome goldheaded cane.

In July, 1878, the *Rochester Post* described in detail Dr. Nichols' new carriage: "A Dexter side-spring phaeton with a roomy top; a suitable box beneath the seat will accommodate the side curtains and the useful rubber lap blanket. On the dash, directly in the center is firmly fixed a physician's lamp with a powerful reflector of an improved design, calculated as a light unto the doctor as he meanders over countless mudholes. The carriage is well built, and judging from the short whirl we took in it behind the doctor's fiery horse Dan it is as easy riding a vehicle as we have seen in many a day." One of his experiences on a country trip in that period catches the imagination: Three miles south of Rochester, it was recounted, the doctor ran on a wolf that was tracking a deer; "the doctor killed the wolf, but got bitten."

Having become interested in Dakota lands, Dr. Nichols in 1879 bought a large farm, sold his Rochester home, and in June, 1880, left with his family for Wahpeton, Dakota, and Breckenridge, Minnesota, east of Wahpeton across the Red River. Early in 1883 he removed from Wahpeton to Minneapolis; there his daughter, aged seven years, died. A few months later Dr. Nichols removed to Belle Plaine, Scott County; on December 31, 1883, when he received his state license, No. 646 (R), he was living in St. Paul. As listed on the roster of the state medical society, in 1887-1891 he was in Merriam Park; 1892-1895, in Wood Lake, Yellow Medicine County; in 1896-1902, in Milaca, Mille Lacs County. For an unverified time he was in Hinckley, Pine County. In 1902 he was on the honor roll of the society, of physicians who for twenty-five years or more had been members of the organization. After 1902 Dr. Nichols' name did not appear on the roster, nor was it included in the first issue of the directory of the American Medical Association, which was compiled in 1905-1906. It is assumed that around 1902 Dr. Nichols removed to California, where his death occurred in September, 1908.

During Dr. Nichols' residence in Rochester there appeared in the city newspapers an occasional mention of a Dr. O. O. Nichols; research has proved that the name was misprinted and that the notes referred to Dr. G. W. Nichols.

(To be continued in the May issue.)

President's Letter

RURAL MEDICAL CARE

DURING the past two years, numerous inquiries have reached the University of Minnesota Medical School, as well as the Minnesota State Medical Association, regarding the number and distribution of doctors in rural districts and the number of students accepted for enrollment in the medical school. Many inquiries have also been directed to legislative groups.

The primary function of the University of Minnesota Medical School, according to Dean H. S. Diehl, is the education and training of physicians to provide the best possible medical care and public health services to the people of Minnesota. Dr. Diehl made this statement in a recent report to the Committee on University Relations of the Minnesota State Medical Association.

Dr. Diehl stated that the number of students accepted for admission to the medical school is determined by the faculty of the school and is based entirely upon their judgment as to the number that can be adequately trained with the facilities, the staff, and the budget available. No medical organization has ever attempted to exert any influence to restrict the number of students, Dr. Diehl pointed out. He also felt that with present facilities of the medical school, the ideal class would be about 100 students. However, he revealed that this number has been increased voluntarily to 125 students, to meet increased demands, entailing expansion of facilities and staff.

More Doctors Graduated

The number of physicians graduated has increased more rapidly than has the population of the state, and, in 1950, in Minnesota there was 20 per cent more doctors per unit of population than there was in 1930. At the present time there is one doctor for every 735 people.

The training of medical students takes much time because the system of lectures and books has been supplemented in great part by clinical bedside training. The University also trains students in the allied medical sciences and, through the University hospital, provides medical care for tens of thousands of patients annually.

Not Inferior Care

Fewer physicians in smaller communities does not mean inferior medical care for those people. Naturally, with modern facilities as advanced as they are today, people can go to a physician's office, clinic or hospital with much greater ease and less time than the old country doctor could go five miles to see a patient. And today's patient also has the advantage of accumulative medical knowledge—the best in the world.

Dr. Diehl explained that the University has voluntarily increased its capacity to enroll medical students and is working now on a plan to accelerate its program further. On a population basis, compared with other states, Minnesota has more than its share of physicians—3,886 is the actual figure, and Minnesota's share of the nation's 178,000 practicing physicians would be only 3,560. Also, of the 6,000 physicians graduated annually, Minnesota's share would be 120—Minnesota with 125 is more than keeping pace with the need, and is constantly striving to improve this excellent record.

J. F. Norman

President, Minnesota State Medical Association

Editorial

Carl B. Drake, M.D., *Editor;* George Earl, M.D., Henry L. Ulrich, M.D., *Associate Editors*

STATE MEETING

THE program of the ninety-eighth annual meeting of our State Medical Association to be held in Rochester, April 30, May 1 and 2, appears in this issue. While the program contains no innovations the program represents the evolutionary result of nearly a century of experience in the holding of medical conventions. We are inclined to be complacent when confronted by the scientific exhibits, the colored cinema, the antibiotic and the advances in diagnosis and operative treatment of heart and lung diseases. Imagine the reaction of our predecessors who attended our first meeting ninety-seven years ago were they able to attend this year's meeting.

The Mayo Civic Auditorium is well adapted for the general and sectional meetings and the Mayo Foundation House for the Round Table discussions. Those attending the convention will be the guests of the Olmsted-Houston-Fillmore-Dodge County Medical Society on Monday evening at the Variety night open house. The annual banquet is scheduled to be held at Valencia, a mile north of the city on Highway 52 on Tuesday evening. Dr. John W. Cline of San Francisco, president elect of the A.M.A. and a forceful speaker, will address the banqueters following the address by Dr. J. F. Norman, president of our State Medical Association.

A visit to Rochester should include the Rochester Public Health Center, open each afternoon and the second annual Art Exhibit, sponsored by the Minnesota Physicians Art Association.

The annual meeting of the M.S.M.A. is each year the largest held in the state. The programs are usually well worth while and this year's program is no exception. The meeting affords an unsurpassed opportunity to meet one's professional friends and acquaintances as well as to add to one's scientific knowledge.

LACK OF PHYSICIANS FOR VETERANS HOSPITALS

THE FACT that two new Veterans Hospitals in West Virginia, which cost the taxpayers $12,000,000 and have a capacity of 4,000 beds, have been unoccupied the past year because of a lack of physicians, has had considerable publicity of late in the press. Editorial comment has varied.

One editorial which appeared in a Minnesota paper attributed the lack of physicians to an overall shortage of physicians in the country and blamed this lack on the attitude of the AMA in opposing federal subsidy for the expansion of the medical schools. The statement has been made repeatedly that there is a scarcity of physicians in the country. There has been, for the most part, in recent years little evidence of a shortage of physicians. There are, as a matter of fact, more physicians in relation to the population in the United States than in most, if not all, other countries. In the various states, the number of people for each physician are: California 639; Connecticut 612; Illinois 660; Massachusetts 538; New York 475; Michigan 914; Minnesota 718; North Dakota 1000; Tennessee 1000. This is because the medical schools of the country have been increasing their yearly output of physicians over the past twenty years from 2,680 in 1920 to 5,553 in 1950—more than double, in fact. The accelerated program of the medical schools during the World War II years added an estimated 5,000 or 6,000 additional graduates. Of course, with the resumption of mobilization and war status there is now a scarcity of everything, including medical school graduates. To meet the abnormal need for more doctors, the medical schools are seriously considering the resumption of the accelerated medical school program on a national basis.

It is true that the medical profession is strongly opposed to federal subsidy of. the medical schools. Federal subsidy means federal control and a step towards socialism.

As to the real reason for the lack of medical personnel for the two VA hospitals in West Virginia, General Hawley and Dr. Paul Magnuson and others not associated with the Veterans Administration have stressed the importance of locating VA hospitals near medical centers and centers of population. The building of VA hospitals near medical centers and placing medical care under the supervision of medical schools as was done in Minnesota and taking medical care out of politics have resulted in the provision of first-class care for the veterans. Allowing political pressure to influence the location of VA hospitals and building hospitals in spots isolated from centers of population have proven disastrous. Following World War I a VA orthopedic hospital was built out West distant from civilization and could never be used—reason, lack of professional personnel. The lesson was not learned. Not only were these two hospitals built in West Virginia but another was built in Wisconsin, ignoring the lesson which should have been learned. Trying to make the AMA the scapegoat for this inexcusable waste of the taxpayers' money just will not succeed.

As we have previously pointed out, the present law provides for the care of veterans by the Veterans Administration for disabilities not service-connected, providing beds are available and the veteran states he is unable to provide medical care for himself. As a result, 85 per cent of veterans in the veterans hospitals are being treated for disabilities in no way service-connected. The VA facilities are without doubt more than sufficient for the present care of service-connected disabilities without these unmanned hospitals in West Virginia and Wisconsin. This does not mean that the building of hospitals, which it should be known in advance cannot be staffed, is not reprehensible.

HUMAN BRUCELLOSIS

HUMAN BRUCELLOSIS continues to be a confusing clinical problem. Diagnosis, except in the acute phases of the disease, is often difficult to establish with certainty. Therapy of acute brucellosis with the newer antibiotics without doubt controls the acute signs and symptoms of the disease and markedly reduces the incidence of complications. However, the rather high relapse rate, either clinical, bacteriological, or both, indicates that an effective therapeutic agent, which will eradicate the causitive organism from the body tissues, is not yet available. In this regard it would appear that combined therapy such as aureomycin plus either streptomycin, or dihydrostreptomycin, may be more effective than any one antibiotic alone.

The incidence of human brucellosis is related directly to the incidence of the disease in domestic animals. Since brucellosis, except for laboratory infections, is transmitted from infected animals to man, the human disease is most commonly seen in farmers, veterinarians, packing house workers, and individuals consuming unpasteurized dairy products. Physicians in endemic areas now suspect the disease in those patients with potential exposure to infection who manifest chills, fever, weakness, malaise and generalized aches and pains. In such cases, a diagnosis of brucellosis may not be difficult to establish. The majority of patients with acute infections will have an elevated agglutinin titer above the questionable 1:40 or 1:80 range and many will have positive blood cultures if careful, frequent bacteriological studies are made. It is, however, in the cases of so-called "chronic brucellosis" with prolonged, vague, poorly defined symptoms, little or no fever, and few or no remarkable physical findings that the questions of a correct diagnosis and the best therapy most often arise. It would appear that too often patients are diagnosed as having "chronic brucellosis" on the basis of a positive skin test or a questionably significant agglutinin titer. As a general rule, a diagnosis based on these findings alone without other more definite evidence is, at best, subject to considerable doubt. On the other hand, it must be recognized that a few patients who have had bacteriologically proved brucellosis may continue, after treatment, to manifest the signs and symptoms of "chronic brucellosis" for months or even years without clear-cut laboratory evidence of active disease. In many of these cases, bacteriological studies are repeatedly negative and the agglutinin titer may be low. Are, then, the symptoms in such cases due to brucellosis?—or are they related to other causes such as an incidental or associated neurosis?

At the present time, there is no good objective basis upon which to formulate the correct answer to these important and fundamental questions. The clinician must rely upon his good judgment and a critical evaluation of each case—and accept the fact that his final conclusion may often be wrong.

If this large area of uncertainty prevails in the correct diagnosis of "chronic brucellosis," it is not surprising that so much argument is heard as to the relative merits of the various types of therapy for "chronic brucellosis." Unbiased, scientific evaluation must certainly doubt the efficacy of vaccine therapy. On the other hand, antibiotic therapy in "chronic brucellosis" has too often been of questionable benefit. It seems fair to state that at the present time there is no specific therapy for "chronic brucellosis" which can be depended upon to produce good results.

All of these problems relating to the diagnosis and treatment of human brucellosis clearly demonstrate the need for much more fundamental investigation. The necessity for control of the disease in animals is self-evident. More specific and discriminating diagnostic procedures would be extremely helpful. Much more knowledge pertaining to the fundamental disease process in the human body must be accumulated. Finally, continuing efforts must be made to find a therapy which will get at and eradicate the infection from the body tissues. Only when these things have been accomplished can human brucellosis be considered as one of the conquered infectious diseases.

—J. M. S.

BOVINE BRUCELLOSIS

BOVINE brucellosis control and eradication on an individual herd basis began in Minnesota many years ago. However, in 1934 and 1935, during the drouth period, this program received a marked impetus when the elimination of diseased animals became an important part of the cattle reduction program of that period. Large numbers of herds were tested in this interval with the serum agglutination test for brucellosis and many infected animals sold for slaughter.

In 1939 a state law provided for bovine brucellosis control on a county area basis. For the area control plan to become effective in a county, at least 67 per cent of the cattle owners must sign a petition requesting the area plan of control. If the petition requirements are satisfied, all cattle owners in the county are required to submit their cattle to the serum agglutination test which is conducted at state and Federal expense. All infected herds so disclosed are placed under quarantine and retested at intervals of thirty to sixty days until they pass one negative test. After three successive negative tests such herds are considered as brucellosis free.

The owner of an infected herd may choose one of the three following plans of eliminating the disease: (1) Elimination of the infected animals for slaughter. (2) Isolation or segregation of the infected animals as a separate unit from the negative animals under suitable quarantine and elimination for slaughter of such animals as early as feasible. (3) If the farmstead and pastures are such that suitable quarantine measures such as double fencing of pastures of adjoining farms and fencing animals away from watercourses and drainage ditches will provide necessary protection to neighboring herds, the infected animals may be retained temporarily on the premises and a program of calfhood vaccination with *Br. abortus* strain 19 followed to provide replacements for infected animals as early as possible.

The first plan, elimination by selling for slaughter, is the most feasible plan for a high percentage of infected herds. On the average, approximately 20 per cent of the animals in infected herds are found to be positive to the agglutination test. Approximately 75 to 80 per cent of the infected herds have less than 20 per cent infection, and over 50 per cent have less than 10 per cent infection. Of the infected herds approximately 70 per cent are negative to the first retest if the infected animals disclosed earlier have been removed. Thus, in a high percentage of the infected herds the disease is not extensive nor is the infection spreading rapidly. Therefore elimination of the infected animals is the most economical and practical method of providing satisfactory protection of the negative animals.

The second plan, segregation of infected animals from the remainder of the herd, is feasible on but a small percentage of premises but is employed occasionally where facilities permit and it is desirable to retain valuable lines of breeding.

The third plan, temporary retention of infected animals with calfhood vaccination, is the more practical plan in the more heavily infected herds or where there is good evidence of a rapid spread of the disease. Elimination of the infected animals is not feasible economically in many such herds. Calfhood vaccination with strain 19, a viable vaccine of low virulence, does not induce immunity in the common sense of the term, but does produce a significant increase in the resistance. By raising vaccinated replacements the infected animals may be eliminated usually in a period of three to five years.

At the present time, twenty-three counties largely in the northern and western parts of the state are certified as modified brucellosis free (less than 5 per cent infected herds and less than 1 per cent infected cattle). In addition, ten counties are in the process of certification (one or more county-wide tests completed). The first county-wide agglutination test in the thirty-four counties thus far under the area control plan disclosed 97.8 per cent of the cattle and 89 per cent of the herds to be free of brucellosis. For the remainder of the state it is estimated that approximately 95 per cent of the cattle and 75 per cent of the herds are free of the disease.

The chief value of the area plan of control is that it provides very valuable protection for the negative herds in the county by placing the infected herds under quarantine until the infection can be eradicated. The eradication of the disease from the infected herd is accomplished by the particular plan of procedure best suited to the status of the disease within the herd. As the area control plan is extended to the remainder of the state it is anticipated that bovine brucellosis will be reduced eventually to the very low level now experienced for bovine tuberculosis.

—M.H.R.

ARE ANTICOAGULANTS ALWAYS INDICATED IN ACUTE CORONARY INFARCTION?

CERTAIN published series have shown that the incidence of embolic phenomena, if not mortality, in patients treated with anticoagulants, is definitely lower than in control series in which they are not used. Does this mean, therefore, that the physician is not furnishing the proper and accepted treatment if he omits the use of anticoagulants in these cases?

We venture the opinion that all cardiologists do not treat all patients suffering from acute myocardial infarction with anticoagulants irrespective of the severity of their symptoms. There are several reasons why this medication is at times omitted. The administration of Heparin or Dicumerol is not without some hazard as regards hemorrhage, particularly. The daily puncturing of a vein is more or less disturbing to a more or less ill patient. The cost to the patient is something to take into consideration in many cases.

An analysis of the question of whether to use or not to use anticoagulants recently appeared. In brief, the authors* conclude from an analysis of 424 cases, in which no coagulants were used, that anticoagulants may be dispensed with in good risk patients—that is, in those who (1) have not had a previous infarction; (2) do not have intractable pain; (3) do not have an extreme degree or persistence of shock; (4) do not have significant enlargement of the heart; (5) do not have a gallop rhythm, congestive heart failure, auricular fibrillation or flutter, ventricular tachycardia or intraventricular block; (6) do not have diabetes or other complicating serious disease. The age of the patient does not seem to affect the treatment or prognosis. Of the 204 patients who during the first twenty-four hours of hospitalization lacked any of these indications of being poor risks, only five died, a mortality of 2.45 per cent; and only two of the five could possibly have been saved by anticoagulant therapy. The incidence of thromboembolism in this group of 204 patients was only 0.98 per cent. In contrast were the remaining 220 of the group classed as poor risks, in which the mortality was 44.5 per cent and the incidence of thromboembolic complications was 7.7 per cent.

Statistically, then, the hazard incurred in not using an anticoagulant in the good risk patients is probably no greater than the risk incurred by using the anticoagulant. One's decision to dispense with anticoagulants in "good risk" patients, therefore, receives the approval of these authors.

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*Russek, Henry T.; Zohman, Burton L.; White, La Vere G. and Doerner, Alexander A.: Indications for Bishydroxycoumarin (dicumerol) in acute myocardial infarction. J.A.M.A., 145:390, (Feb. 10) 1951.

IMPRESSIONS FROM EUROPEAN NEUROSURGICAL CLINICS

(Continued from Page 338)

ly and accurately any inclination to a state of shock as might occur with blood loss and surgical trauma.

This entire survey which occupied two months was quite revealing as to the amazing uniform progress displayed in the European Neurosurgical Clinics. Each hospital was a busy and serious place. It was most gratifying to learn how closely related these centers are particularly in the friendly relationship of the medical staffs. The impression gained during this tour was that the personnel of the European teaching hospitals reflected in their work a firm hope for a secure future.

MEDICAL ECONOMICS

Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association
George Earl, M.D., Chairman

CONFERENCE DISCUSSES RURAL HEALTH NEEDS

Latest needs and accomplishments in the broad field of rural health were discussed and evaluated at the recent Sixth National Conference on Rural Health, held in Memphis, Tennessee, with leaders in the field presenting their views of the problem.

Discussing the National Rural Health Program, Dr. F. S. Crockett, Chairman of the Committee on Rural Health of the American Medical Association, declared that the program has not developed solely as a doctor's plan, stating that "none has claimed a preferred or dominant position in this." Stressing the need for active cooperation among all groups interested in and affected by rural health considerations, Dr. Crockett felt that "you cannot decide a truth on a 60 to 40 per cent basis."

Dr. Crockett reported to the large attending audience that at the present time there are 1,190 health councils throughout the country. This averages about one in every three counties of the nation.

He felt, however, that such a report was not entirely accurate or complete because no one can agree on just what a health council is or what its duties and responsibilities should be. Its function, Dr. Crockett said, "should be largely advisory in nature." It should have medical advisers and should concern itself with *all* the problems of the public's health.

No Remote Control

Health, on both an individual and a community-wide level, is like salvation, it comes from within," according to Dr. Crockett, who stated that the individual community needs cannot be determined by remote control.

Program's Meaning Explained

Aubrey D. Gates, Field Director for the Committee on Rural Health of the American Medical Association, explained the meaning of the national rural health program in terms of the vast difference between medical care and health. Definitions of these often-confused terms, said Gates, will clear up many facets of health problems throughout the nation. He defined medical care as a purchasable service, while health is a personal responsibility and, in itself, is not really purchasable.

Changes in medical techniques have brought about many different problems in rural health. In some cases, medical science, through its rapid advance in ridding the world of some maladies, has actually handicapped itself by ridding itself of cases by which to teach newcomers! For instance, now it is almost impossible to find a pellegra patient with which to teach medical students about the disease. It has been several years since doctors in the South have found a case of real malaria. However, the flexibility and adaptability of modern medical science has progressed to such an advanced stage that it can effectively cope with new and different problems in rural health, as well as other related fields, as they appear.

County Council Discussed

Dr. E. K. Yantes of Wilmington, Ohio, told the conference of the problems faced and the progress made by his county health council. He said that the council was composed of 41 different organizations and community groups which were active, but separately so, in the county.

The achievements of this group were listed by Dr. Yantes, who felt that those achievements were only possible through a co-ordinated effort on the part of the entire county. By looking into the county's own health situation and appraising the needs, it was able to go ahead with a reorganization of the health department. The Council also made a health survey of the community. Each worker had 10 families to visit. The health program was publicized by means of banners across main streets, posters, newspapers and other publicity.

The results were tabulated in map and chart form, and made available for further study and improvement of conditions. An immunization program was carried out in which one-third of the community was immunized and 7 per cent vaccinated, with 42 per cent of the pre-school children protected against diphtheria. In the adult population, only the ex-servicemen were protected against tetanus. The survey showed that 75 per cent of the pregnancies were carried to full-term, and 60 per cent of the mothers had prenatal care. The report revealed that undulant fever was the biggest problem.

Among other achievements of the Council, Dr. Yantes stated that a county-wide milk ordinance was passed, education and progress on swine brucellosis was done, immunization and vaccination was made compulsory in the schools, and the first well-baby clinics and prenatal schools in the area were established.

Health Everybody's Job

H. E. Slusher, Chairman of the Health Committee of the American Farm Bureau Federation, outlined the broad view of the rural health situation. He declared that the realization has come that people must be reached where they live, that health is no longer completely the doctor's job, but should be the personal responsibility of every person who is part of any town or community in the country. Slusher said that "before the turn of the century, health was a doctor's job. Doctors are doing a wonderful job of patching us up and keeping us going," but now it is a broader field of community, county, state and national responsibility.

MINNESOTA HOLDS RURAL HEALTH DINNER

In conjunction with the annual County Officers Meeting, held in Saint Paul on March 3, the Minnesota State Medical Association inaugurated its first rural health dinner, to bring together farm and medical leaders to talk over the remaining problems in Minnesota rural health. The stated purpose of this gathering:

> ". . . will be the forerunner of annual statewide rural health conferences, where farm and medical leaders may work together to solve the remaining problems of rural health, as they have worked together in the past to lay a sound framework for rural medical facilities and health education.
>
> "Through a continuation of the co-ordinated efforts of farmers and doctors, Minnesota will retain and strengthen its record for longer, healthier living."

Distribution Discussed

Speakers at the dinner included Dr. Paul C. Leck, Austin, who reviewed Minnesota's progress and future needs in rural health. Dr. Leck discussed the problem of doctor distribution, stating that "improved roads bring the doctor minutes and sometimes hours closer to his rural patients in the practice of mid-twentieth century medicine."

Dr. Leck stressed the importance of discarding outmoded ideas about doctor distribution before more progress can be made in rural health. He said:

> "Economists have come to think in terms of market areas rather than county boundary lines in their studies of the American public—both rural and urban—and it is a concept that we have come to adopt, too. Farm people will follow, for the most part, the economic paths that they have set for themselves. If, within their *trade* area they have doctors and hospitals which offer good medical care, then they are apt to accept this situation as satisfactory, without stopping to think of how these facilities are divided among the counties within the specific trade area. Some of the government planners, of course, are still laying out master plans for health care that call for so many hospitals and doctors per county, but the fallacy of this thinking is clearly evident as we recognize the economic, geographic and population differences of counties even within close range of each other."

Praising rural communities for their work in the rural health field, Dr. Leck lauded them for accepting their share of the responsibility involved.

> "For example," he stated, "several small towns have initiated the building of small hospitals, clinics and office buildings which are made available to the physician. This negates one drawback to rural medical practice—the problem of the young doctor who has not the financial capital to provide himself with the equipment and facilities he needs to practice the top grade medical techniques he has learned."

The main speaker of the evening was Franklin D. Murphy, M.D., Dean, University of Kansas School of Medicine, who averred that the rural

(Continued on Page 384)

MINNESOTA STATE MEDICAL ASSOCIATION

Ninety-Eighth Annual Meeting

Rochester, Minnesota
April 30, May 1 and 2, 1951

BUSINESS SESSIONS

SATURDAY, APRIL 28

Hotel Kahler

2:00 P.M.—Council .... Cafe
6:00 P.M.—Council .... Cafe

SUNDAY, APRIL 29

Hotel Kahler

8:00 A.M.—Council .... University Club
10:00 A.M.—Reference Committees .... Mezzanine
2:00 P.M.—House of Delegates .... Cafe
8:00 P.M.—House of Delegates .... Cafe

MONDAY, APRIL 30

8:00 A.M.—Council..... University Club, Hotel Kahler
8:00 A.M.—Committee on First Aid and Red Cross.. Continental Room, Hotel Carlton
12:15 P.M.—House of Delegates.... Cafe, Hotel Kahler

TUESDAY, MAY 1

Hotel Kahler

8:00 A.M.—Council.................. University Club
8:00 A.M.—Committees .... Cafe

- Anesthesiology
- Child Health
- Chronic Illness
- Diabetes
- General Practice
- Heart
- Hospitals and Medical Education
- Military Affairs
- Ophthalmology
- Public Health Education
- Rural Medical Service
- Tuberculosis

WEDNESDAY, MAY 2

8:00 A.M.—Council..... University Club, Hotel Kahler
8:00 A.M.—Committee on Public Policy Continental Room, Hotel Carlton
8:00 A.M.—Committees .... Cafe, Hotel Kahler

- Cancer
- Conservation of Hearing
- Fractures
- Historical
- Hospitals and Professional Relations
- Insurance Liaison
- Maternal Health
- Medical Economics
- University Relations
- Veterans Medical Service

GUEST SPEAKERS

The State Medical Association is indebted to the following societies and organizations for guest speakers at this meeting:

The Minnesota Department of Health—Obstetric Manikin Demonstrators: Thomas K. Brown, Professor of Clinical Obstetrics and Gynecology, Washington University School of Medicine, St. Louis, Missouri; Gerald W. Gustafson, Professor of Obstetrics and Gynecology, Indiana University School of Medicine, Indianapolis, Indiana; Edward A. Banner, Consultant, Obstetrics and Gynecology, Mayo Clinic, Rochester.

The Minnesota Heart Association—Speaker, H. B. Sprague, President, American Heart Association, Brookline, Massachusetts.

The Minnesota Radiological Society—Speaker, Wendell G. Scott, Associate Professor of Clinical Radiology, Washington University School of Medicine, St. Louis, Missouri, who will deliver the annual Russell D. Carman Memorial Lecture in Radiology.

The Minnesota Society of Clinical Pathologists—Speaker, Paul W. Schafer, Professor of Surgery and Chairman of the Department of Surgery, University of Kansas School of Medicine, Kansas City, Kansas, who will deliver the annual Arthur H. Sanford Lectureship in Pathology.

Northwestern Pediatric Society—Speaker, John A. Anderson, Professor and Head, Department of Pediatrics, Stanford University School of Medicine, San Francisco, California.

Northern Minnesota Medical Association—Speaker, Bram Rose, Associate Professor of Medicine, McGill University Faculty of Medicine, Montreal, Quebec, Canada.

SOCIAL EVENTS

MONDAY, APRIL 30

Luncheons

American Medical Women's Association, Inc., Minnesota Chapter
12:15 p.m., Continental Room Lounge, Hotel Carlton
Make reservations with Dr. Elizabeth Troxil, Veterans Hospital, 54th St. and 48th Avenue So., Minneapolis.
Open to all visiting women physicians.

Minnesota Chapter, American College of Chest Physicians
12:15 p.m., Pine Room, Hotel Carlton

Dinners

Minnesota Chapter, American Academy of General Practice
6:00 p.m., Rochester Golf and Country Club

Minnesota Medical Foundation, Minnesota Medical Alumni
6:00 p.m., University Club Cafe, Hotel Kahler
Presiding: J. F. Norman, President, Minnesota State Medical Association
Greetings: Dean H. S. Diehl; Edwin J. Simons, member, Board of Trustees, Minnesota Medical Foundation; Herman Drill, President, Minnesota Medical Alumni Association; Owen H. Wangensteen, President, Minnesota Medical Foundation
Address: "University Research Tradition: A Centennial Perspective"—Dean Theodore C. Blegen, Graduate School, University of Minnesota

All Minnesota physicians and their wives are cordially invited. Make reservations with Dr. George N. Aagaard, Department of Continuation Medical Education, University of Minnesota Hospitals, Minneapolis

Nu Sigma Nu
6:00 p.m., Pine Room, Hotel Carlton

Special Meeting

Medical Veterans Society of Minnesota
5:00 p.m., University Club, Mezzanine Floor, Hotel Kahler

TUESDAY, MAY 1

Dinners

Minnesota Radiological Society
6:00 p.m., Rochester Golf and Country Club
Minnesota Society of Clinical Pathologists
6:30 p.m., Markay Dining Room
Annual Banquet of Minnesota State Medical Association
7:00 p.m., Valencia

GENERAL SESSION

MONDAY, APRIL 30

Scientific Committee: H. B. Sweetser, W. E. Herrell, C. B. Nessa, C. L. Oppegaard, M. G. Gillespie, W. P. Ritchie

A.M.
8:30 Visit Scientific and Technical Exhibits ....Auditorium

FRACTURES

9:00 Clinics by Members of the Mayo Clinic Staff ....Auditorium Theater
Symposium on Fractures with Presentation of Cases
Moderator: P. R. Lipscomb
"General Principles of Fracture Management"—P. R. Lipscomb
"Inter-trochanteric Fractures of the Femur"— W. H. Bickel
"Fractures of the Elbow Joint"—M. B. Coventry
"Fractures about the Ankle Joint"—J. C. Ivins

Intermission

10:15 Visit Scientific and Technical Exhibits ....Auditorium
11:00 "Rehabilitation in Fracture Patients" Auditorium Theater
Wallace Cole, St. Paul
Harry B. Hall, Minneapolis

Afternoon

P.M.
12:15 Obstetric Manikin Demonstration
Chamber of Commerce Dining Room
Thomas K. Brown, Professor of Clinical Obstetrics and Gynecology, Washington University School of Medicine, St. Louis, Missouri
12:15 Miscellaneous Luncheons
1:30 Visit Scientific and Technical Exhibits
Auditorium

NEW DRUGS

2:00 Cortisone and ACTH Symposium............. Auditorium Theater
Moderator: H. F. Polley, Rochester
"Physiological and Metabolic Aspects of Cortisone and ACTH"—E. B. Flink, Minneapolis
"The Effects of Cortisone in Glomerulonephritis and the Nephropathy of Disseminated Lupus Erythematosus"—Wyman E. Jacobson, Minneapolis
"Cortisone and ACTH in Hay Fever and Asthma" G. A. Koelsche, Rochester
"Cortisone in Periarteritis Nodosa"—R. M. Shick, Rochester
"Cortisone in the Treatment of Skin Conditions" —L. A. Brunsting, Rochester.
"Cortisone in the Treatment of Rheumatic Fever" —H. L. Smith, Rochester
Summary—H. F. Polley, Rochester

3:15 **Intermission**

Visit Scientific and Technical Exhibits........ Auditorium
4:00 New Drugs (continued).....Auditorium Theater
"Banthine and Other Drugs in the Treatment Gastrointestinal Disease"—R. N. Bieter, Minneapolis
"Combinations of Antibiotics in Treatment of Infectious Diseases"—W. E. Wellman, Rochester
"Radioactive Iodine in Thyroid Disease"—William M. McConahey, Rochester
"Current Chemotherapy of the Leukemias"—Talbert Cooper, Rochester
5:00 Visit Scientific and Technical Exhibits........ Auditorium
5:15 Obstetric Manikin Demonstration.............. South Hall, Auditorium
Thomas K. Brown, Professor of Clinical Obstetrics and Gynecology, Washington University School of Medicine, St. Louis, Missouri
6:00 Special Dinners
8:30 Variety Night...............Auditorium Theater

SPECIAL SESSION

MONDAY, APRIL 30, 1951

South Hall, Auditorium

P.M.
2:00 Minnesota Chapter of the American College of Chest Physicians
"Coin Lesions of the Lung"—Daniel L. Fink, St. Paul
"Crushing Injuries of the Chest"—Nathan K. Jensen, Minneapolis
"Bronchial Asthma"—Royal V. Sherman, Red Wing
"Association of Pulmonary Tuberculosis and Carcinoma"—G. A. Hedberg, Nopeming
W. H. Wierman, Rochester
G. G. Graham, Rochester
"Surgery for Diseases of the Heart and Great Vessels"—John W. Kirklin, Rochester

GENERAL SESSION

TUESDAY, MAY 1, 1951

Scientific Committee: H. B. Sweetser, W. E. Herrell, C. B. Nessa, C. L. Oppegaard, M. G. Gillespie, W. P. Ritchie

A.M.
8:30 Visit Scientific and Technical Exhibits........ Auditorium

PULMONARY DISEASES

9:00 Clinic by Members of the Mayo Clinic Staff.. Auditorium Theater
Four Case Presentations Illustrating Newer Concepts of Diagnosis and Treatment of Pulmonary Diseases
Moderator: H. J. Moersch
Participants: S. W. Harrington, J. R. McDonald, L. A. Weed, H. W. Schmidt

10:15 **Intermission**

Visit Scientific and Technical Exhibits........ Auditorium

11:00 "The Present Status of BCG Vaccine"—E. P. K. Fenger, Oak Terrace

"Bronchoscopy and Common Chest Diseases"—Paul G. Boman, Duluth

"Surgical Treatment of Common Pulmonary Conditions"—Lyle A. Tongen, St. Paul

"Rheumatic Fever—Determination of Activity"—John A. Anderson, Professor and Head, Department of Pediatrics, Stanford University School of Medicine, San Francisco, California

Afternoon

P.M.

12:15 Obstetric Manikin Demonstration.............. Mayo Foundation House

Gerald W. Gustafson, Professor of Obstetrics and Gynecology, Indiana University School of Medicine, Indianapolis, Indiana

12:15 Round-Table Luncheons

1:30 Visit Scientific and Technical Exhibits........ Auditorium

2:00 Russell D. Carman Memorial Lecture........ Auditorium Theater

Presentation of Speaker—Oscar Lipschultz, Minneapolis, President, Minnesota Radiological Society

"Advances in the Radiological Diagnosis of Heart Disease"—Wendell G. Scott, Associate Professor of Clinical Radiology, Washington University School of Medicine, St. Louis, Missouri

ACUTE ABDOMINAL CONDITIONS

2:40 Arthur H. Sanford Lectureship in Pathology.. Auditorium Theater

Presentation of Speaker—John F. Noble, St. Paul, President, Minnesota Society of Clinical Pathologists

"Pathology of the Acute Abdomen"—Paul W. Schafer, Professor of Surgery and Chairman of the Department of Surgery, University of Kansas School of Medicine, Kansas City, Kansas

3:15 **Intermission**

Visit Scientific and Technical Exhibits........ Auditorium

4:00 Acute Abdominal Conditions (continued)...... Auditorium Theater

"Radiologic Aspects"—Leo G. Rigler, Minneapolis

"Surgical Aspects"—Owen G. McDonald, Duluth

"Urologic Aspects—Theodore H. Sweetser, Minneapolis

"Gynecologic Aspects"—James J. Swendson, St. Paul

"Summary"—N. Logan Leven, St. Paul

5:00 Visit Scientific and Technical Exhibits....... Auditorium

5:15 Obstetric Manikin Demonstration.....South Hall, Auditorium

Gerald W. Gustafson, Professor of Obstetrics and Gynecology, Indiana University School of Medicine, Indianapolis, Indiana

6:00 Special Dinners

7:00 Annual Banquet........................Valencia

Presiding: P. A. O'Leary, President, Olmsted-Houston-Fillmore-Dodge County Medical Society

Introduction of Mrs. F. P. Moersch, Rochester, President, Woman's Auxiliary

Presentation of Fifty-Club Certificates

Presentation of Southern Minnesota Medical Association Medal

Presentation of Distinguished Service Medal

Presidential Address—J. F. Norman, Crookston, President, Minnesota State Medical Association

"The Problems Confronting Medicine in the Immediate Future—John W. Cline, President-Elect, American Medical Association, San Francisco, California

SPECIAL SESSION

TUESDAY, MAY 1

A.M.

9:00 Minnesota Society of Clinical Pathologists Tumor Seminar—Little Theater, St. Mary's Hospital

9:00 Minnesota Academy of Ophthalmology and Otolaryngology...........South Hall, Auditorium

"The Retina in Hypertensive Cardiovascular Disease"—Robert W. Hollenhorst, Rochester

"Some Disorders that Affect the Eye and the Central Nervous System"—Thomas J. Kirby, Rochester

"Ear Findings in Brain Tumor"—H. A. Brown, Rochester

"Postirradiated Malignant Lesions of the Face"—John B. Erich, Rochester

10:15 **Intermission**

Minnesota Academy of Ophthalmology and Otolaryngology............South Hall, Auditorium

"The Management of Vasomotor Rhinitis"—James B. McBean, Rochester

"Malignant Tumors of the Nose and Accessory Sinuses"—E. L. Foss, Rochester

"The Management of Anterior Chamber Hemorrhage—H. L. Bair, Rochester

P.M.

3:15 Minnesota Society of Clinical Pathologists Tumor Seminar (continued)—Little Theater, St. Mary's Hospital

GENERAL SESSION

WEDNESDAY, MAY 2, 1951

Scientific Committee: H. B. Sweetser, W. E. Herrell, C. B. Nessa, C. L. Oppegaard, M. G. Gillespie, W. P. Ritchie

A.M.

8:30 Visit Scientific and Technical Exhibits........ Auditorium

CARDIAC AND PERIPHERAL VASCULAR DISEASES

9:00 Clinics by Members of the Mayo Clinic Staff.. Auditorium Theater

Case Presentations Illustrating New Developments in Cardiology

Moderator: T. J. Dry

"Intracardiac Arteriovenous Shunt—Illustrating Dye Concentration Curve Using Ear Oximeter"—J. C. Broadbent *and* E. H. Wood

"Atypical Patent Ductus with Cardiac Catheterization Study"—R. L. Parker

"Coarctation of the Aorta—Surgical Management"—O. T. Clagett

"Isolated Pulmonary Stenosis—Pulmonary Valvulotomy"—J. W. Kirklin

"Mitral Stenosis—Mitral Commissurotomy"—J. W. Kirklin

10:15 **Intermission**

Visit Scientific and Technical Exhibits........ Auditorium

11:00 "Newer Developments in Anticoagulant Therapy in Vascular Diseases"—N. W. Barker, Rochester

"Surgical Treatment of Varicose Veins"—Laurence D. Hilger, St. Paul

"Diagnostic Pitfalls in Cardiology"—H. B. Sprague, President, American Heart Association, Brookline, Massachusetts

Afternoon

P.M.

12:15 Obstetric Manikin Demonstration............. Mayo Foundation House
Edward A. Banner, Rochester

12:15 Round-Table Luncheons .... See below

1:30 Visit Scientific and Technical Exhibits....... Auditorium

ALLERGY

2:00 "Physiological Basis of Allergy"—Bram Rose, Associate Professor of Medicine, McGill University Faculty of Medicine, Montreal, Quebec, Canada

"Eye, Ear, Nose and Throat Aspects of Allergy" —W. T. Wenner, St. Cloud

"Skin Allergies"—Elmer M. Rusten, Minneapolis

"Allergies in Children"—Harold F. Flanagan, St. Paul

"Allergic Asthma"—L. E. Prickman, Rochester

"Gastrointestinal Manifestations of Allergic Disease"—C. N. Hensel, St. Paul

"Psychogenic Factors in Allergic Disease"—M. G. Fredricks, Duluth

ROUND TABLES

12:15 p.m. Daily

MONDAY, APRIL 30

Chamber of Commerce Dining Room

Obstetric Manikin Demonstration—Thomas K. Brown, St. Louis, Missouri

TUESDAY, MAY 1

Mayo Foundation House

"Poliomyelitis and Other Virus Diseases"—John A. Anderson, San Francisco

"Common Dermatoses"—John F. Schmid, Duluth

"Insulin Mixtures and N.P.H."—John R. Meade, St. Paul

"The Management of Intermittent Exotropia"—Theodore G. Martens, Rochester

"Burns and Frostbite"—Mark B. Coventry, Rochester

"Sterility
In the Male"—T. L. Pool, Rochester
In the Female"—Mary Elizabeth Mussey, Rochester

"Post-Partum Hemorrhage"—E. C. Sargent, Jr., Austin

"Rh Factor"—Joseph W. Goldsmith, St. Paul

"Emergency Blood Transfusions"—T. H. Seldon, Rochester

"Obstetric Manikin Demonstration"—Gerald W. Gustafson, Indianapolis, Indiana

WEDNESDAY, MAY 2

Mayo Foundation House

"Cardiac Emergencies"—Martin E. Janssen, Crookston

"Radical Treatment of Cancer"—Richard L. Varco, Minneapolis

"Treatment of Spontaneous Subarachnoid Hemorrhage" —G. J. Strewler, Duluth

"Blood Dyscrasias: Recent Advances"—Paul S. Hagen, Minneapolis

"Prostatectomy"—Ormond S. Culp, Rochester

"Vertigo"—Henry L. Williams, Rochester

"The Relief of Pain by Neurosurgical Procedures"—W. T. Peyton, Minneapolis

"Congenital Gastrointestinal Anomalies"—Geo. C. Kimmel, Jr., Red Wing

"Cytologic Diagnosis of Uterine Neoplasms"—Arthur H. Wells, Duluth

"Obstetric Manikin Demonstration"—Edward A. Banner, Rochester.

SCIENTIFIC CINEMA

Southeast Corner, Arena

Courtesy of
Joseph P. Hackel
MEDICAL FILM GUILD, LTD.
New York City

MONDAY, TUESDAY, WEDNESDAY
APRIL 30, MAY 1 AND 2

A.M.

9:00 ARTERIAL BLOOD PRESSURE—Physics and Measurement
American Heart Association

9:38 CERVICITIS—Etiology—Diagnosis—Treatment
Loyola University Medical School, Chicago, Illinois

10:01 PROBLEMS OF RHEUMATOID ARTHRITIS —Arthritis & Rheumatism Foundation

10:33 ALLERGY—Immunology and Treatment
University of Pittsburgh, Pittsburgh, Pennsylvania

11:24 HYPOTHYROIDISM—Etiology—Diagnosis—Treatment
Massachusetts General Hospital, Boston, Massachusetts

P.M.

12:15 NON-OPERATIVE TREATMENT OF PARANASAL SINUSITIS
New York Polyclinic Medical School, New York City

Intermission

2:00 CERVICITIS—Etiology—Diagnosis—Treatment
Loyola University Medical School, Chicago, Illinois

2:53 URINARY INFECTIONS—Bacterio-Pathology and Treatment
St. Louis University, St. Louis, Missouri

3:31 NON-OPERATIVE TREATMENT OF PARANASAL SINUSITIS
New York Polyclinic Medical School, New York City

3:49 HYPOTHYROIDISM—Etiology—Diagnosis—Treatment
Massachusetts General Hospital, Boston, Massachusetts
CERVICITIS—Etiology—Diagnosis—Treatment (Alternate Film) Loyola University Medical School, Chicago, Illinois

4:40 PROBLEMS OF RHEUMATOID ARTHRITIS
Arthritis & Rheumatism Foundation

5:12 REQUESTS

South Hall Auditorium

Courtesy of
Mayo Clinic

MONDAY, APRIL 30

A.M.

10:15 ACCIDENT SERVICE
British sound film

TUESDAY, MAY 1

P.M.

3:15 EMBRYOLOGY OF THE EYE

Minnesota Academy of Medicine

Meeting of October 11, 1950

The regular monthly meeting of the Minnesota Academy of Medicine was held on Wednesday evening, October 11, 1950, at the Town & Country Club. Dinner was served at 7 o'clock and the meeting was called to order at 8:15 p.m. by the President, Dr. William A. Hanson.

There were thirty-seven members and one guest present.

Minutes of the May meeting were read and approved.

Dr. F. F. Callahan read the following Memorial to Dr. Everett K. Geer. A motion was carried that this be placed in the records of the Academy and a copy sent to the family.

EVERETT KINNE GEER
1893-1950

Dr. Everett Kinne Geer died in his home in Saint Paul on May 3, 1950, following a protracted illness.

Dr. Geer was born in Saint Paul on January 14, 1893, the son of Dr. Ethelbert F. Geer and Helen Hazen Geer. After graduating from Central High School, he attended the University of Minnesota, where he obtained a B.S. degree in 1915 and M.D. degree in 1917. He served his internship in the Minneapolis General Hospital in 1916-1917 and did postgraduate work in the Trudeau School for Tuberculosis at Saranac Lake, New York.

In the first World War, he did his tour of duty as a Lieutenant in the Medical Corps of the U. S. Navy.

In 1918, Dr. Geer married Olive Barnett Lewis, who survives him, as well as a daughter, Mrs. John Donohower, and a son, Thomas. His eldest son, Everett K. Geer, Jr., was killed in action in World War II.

Dr. Geer held many important positions in his special field of training. He was Chief Physician of the Tuberculosis Division at Ancker Hospital in St. Paul from 1922 until his resignation terminated the appointment in 1949. In 1932, he was made Medical Director of the Children's Preventorium, Ramsey County, and took an active role in the management of this institution. He was consultant for Pokegama Sanatorium, Pokegama, Pine County, Minnesota, from 1920 to 1943 when the institution closed. The University of Minnesota Medical School recognized his ability by making him instructor of Medicine in 1921 and Assistant Professor in 1934. He was a diplomate of the American Board of Internal Medicine and a fellow of the American College of Physicians.

Dr. Geer was a member of the following societies: American Heart Association, American Sanatorium Association, American Trudeau Society, Central Society for Clinical Research, International Union against Tuberculosis, Minnesota Academy of Medicine, Minnesota Society of Internal Medicine, Minnesota Pathological Society, Minnesota State Medical Association, Minnesota Trudeau Society, National Tuberculosis Association, Ramsey County Medical Society, Minnesota Public Health Association and the Ramsey County Public Health Association.

A number of these societies added to Dr. Geer's responsibilities by giving him official position. He was a council member of the American Trudeau Society from 1941 to 1943. In addition he served as President of the Minnesota Trudeau Society in 1934-35 and of the Ramsey County Public Health Association in 1944.

When the Veterans Administration was reorganized under General Omar Bradley, Dr. Geer was appointed Veterans Branch Section Chief in Tuberculosis for the states of Minnesota, North and South Dakota, Iowa, and Nebraska. The Veterans Program was altered later and Area Consultants in Tuberculosis were appointed for various groups of states. Dr. Geer was the Area Consultant in Tuberculosis for the above five states plus Wisconsin, Michigan, Illinois, Wyoming, and Montana.

The *Index Medicus* lists 14 papers by Dr. Geer on problems of chest disease. In 1932, he read a paper entitled "Primary Tuberculosis Among Nurses" before the National Tuberculosis Association. This was followed by 4 papers on the same theme and introduced his work in the prevention of tuberculosis infection in nurses employed in institutions for the care of tuberculosis patients. This contribution was outstanding and his technique has been adopted in many sanatoria here and abroad. Dr. Geer's influence outside the United States is illustrated by a paper in Spanish on prevention of tuberculosis infection which appeared in El dia Medico (Buenos Aires). He will long be remembered by those who pay attention to the prevention of tuberculosis.

Dr. H. M. N. Wynne read the following memorial to Dr. J. K. Anderson who died on March 27, 1950. A motion was carried that this be placed on the records of the Academy and a copy sent to the family.

JAMES KERR ANDERSON
1891-1950

Dr. James Kerr Anderson was born in East Liverpool, Ohio, on July 11, 1891. He was graduated in 1913 with the degree of A.B. from Washington and Jefferson College, located in Washington, Pennsylvania. He entered the Medical School of the Johns Hopkins University the same year and received his M.D. degree in 1917. His internship was served in the Minneapolis General Hospital from June to December, 1917, when he was called for active duty in the U.S. Army Medical Corps as 1st Lieutenant in December, 1917. He served in the army until August, 1920. He started the practice of medicine in Minneapolis but was taken ill and spent the following three years in Glen Lake Sanatorium. In 1924 he became Superintendent of the Deerwood Sanatorium at Deer River, Minnesota, and the following year he was Superintendent of Sunnycrest Sanatorium at Crookston, Minnesota, where he worked until 1929, when he entered the practice of proctology in association with Dr. W. A. Fansler. Dr. Anderson was a clinical associate professor of surgery at the University of Minnesota and an active member of the staffs of Abbott, Northwestern, St. Mary's and Minneapolis General Hospitals. He was a member and past president of the Hennepin County Medical Society, and a member of the Minnesota State Medical Association, the Minneapolis Academy of Medicine, the Minnesota Academy of Medicine, and a Fellow of the American Medical Association, the American College of Surgeons and the American Proctological Society, and a Diplomate of the American Board of Surgery in Proctology. Phi Beta Pi was one of his active interests and he was a past National President of this medical fraternity. Dr. Anderson was co-author with Dr. H. O. McPheeters of the book "Injection Treatment of Varicose Veins and Hemorrhoids" as well as a number of articles on proctological subjects.

In 1917, he was married to Clara Hazel Abele. Their daughter, Gretchen (Mrs. Robert Osgood) and Mrs. Anderson, as well as his mother, survive him.

James Kerr Anderson died March 27, 1950. Services were held in the Chapel of Westminster Church, Minneapolis, and burial was in Zanesville, Ohio.

Dr. Anderson was loved by his professional friends as well as by his patients and his friendship and interest in older people was remarkable. His nonprofessional visits cheered many an ill friend. In spite of his several illnesses and painful afflictions, Dr. Anderson remained to his death a hardworking, kindly and cheerful man.

The Secretary read the names of candidates to be voted on at the November meeting to fill twelve vacancies in the Minnapolis list, this list having been increased from thirty-five to forty-five. There are no vacancies at the present time in the Saint Paul list.

There was some discussion of the revisions in the Constitution or Articles of Incorporation, and it was finally moved, seconded and carried that these articles under consideration be referred back to the Executive Committee for further study and rewording, to be voted on at a later meeting.

A motion was made and seconded that we limit the next election to five of those names present in the list and hold the others over until later meetings. This motion was not carried, however.

The scientific program followed.

Dr. Gordon Kamman, Saint Paul, read a paper on "Traumatic Neurosis, Compensation Neurosis, Attitudinal Pathosis."

There was no discussion of this paper.

Dr. Lyle H. Hay, of the U. S. Veterans Hospital, by invitation, read a paper on "Gastric Polyps." X-ray lantern slides were shown.

GASTRIC POLYPS

A Clinical Study

LYLE H. HAY, M.D.
Minneapolis, Minnesota

The rise in age of the general population due to improved public health practices, advances in therapy of bacterial infection and the decreased mortality in surgical treatment has made malignancy an increasingly important problem. Pending solution of the total problem of cancer, the early diagnosis and treatment of malignancy offer the only real promise for reducing mortality.

This study was made on ninety-seven patients with gastric polyps. The purpose of the study was first to determine what the characteristics of polyps were, i.e., what symptoms they provoked, what the laboratory findings were, what the x-ray picture showed, and what the gastroscopist saw. Second, to determine what natural evolution of pathology followed the identification of gastric polyps. Third, to determine whether all polyps were of the same significance or whether we could judge some to be relatively innocuous and others to offer a more serious prognosis. Fourth, to find a satisfactory screening test for patients which would permit us to employ roentgen study of the stomach and gastroscopy in an attempt to identify polyps. In order to make this a picture of the characteristics of a single clinical entity every effort was made to include only gastric adenomas which we define as a benign epithelial tumor originating from the tubules or glands of the gastric mucosa.

Cases diagnosed clinically were included only after having been visualized on at least two occasions roentgenologically, gastroscopically or by each method on one occasion.

The benign adenomas were selected from benign tumors encountered in the surgical pathology laboratory. No epithelial benign tumors were excluded.

Benign Gastric Polyps

Symptomatology.—In order to eliminate symptoms due to carcinoma, the symptomatology was determined from the sixty-nine cases having only benign polyps or adenomas.

1. Epigastric distress was the most common symptom and was noted in twenty-four of the sixty-nine cases. This was characterized by gaseousness and epigastric fullness usually most marked after eating. In nine of the twenty-four cases the epigastric distress had been present from one to twenty years.
2. Nausea and vomiting were experienced by only four patients, all of whom had epigastric distress and all of whom obtained relief from vomiting.
3. Appreciable weight loss was noted in only seven patients. In two of these patients prolapsing polyps apparently interfering with gastric emptying were present.
4. Pernicious anemia was present in ten patients having benign gastric polyps and iron deficiency anemias in two additional cases. In addition, three cases of pernicious anemia occurred in the group of twenty-eight cases having adenomas associated with carcinoma of the stomach.

Numerous observers have noted the frequency with which benign adenomas and/or carcinoma of the stomach are associated with pernicious anemia.

5. Only three patients had a history of gastrointestinal bleeding. None of these could be classed as showing severe hemorrhage.
6. Twenty-four patients diagnosed as having benign polyps had no symptoms referable to the gastrointestinal tract.

Since nine of the ten patients with pernicious anemia had no symptoms other than those of anemia to implicate the gastrointestinal tract we find thirty-three of sixty-nine (47.7 per cent) of patients complained of no symptoms ascribable to gastric polyps per se.

Laboratory Tests.—*Stool examinations* resulted in positive guaiac tests in twelve of the forty-four patients examined.

Gastric analysis indicated achlorhydria to histamine in sixty-three of sixty-nine patients. In most cases several examinations were made.

Hypochlorhydria was noted in three patients and only three of the sixty-nine patients examined showed more than 25 degrees of free acid.

Carcinoma Associated with Benign Adenomas

Symptomatology.—The symptoms in the twenty-eight cases having benign adenomas associated with carcinoma of the stomach were more severe. Twenty-one cases showed epigastric distress, six nausea and vomiting, sixteen significant weight loss, five hypochromic anemia and three bleeding. Only one of the twenty-eight showed no symptoms referable to the upper gastrointestinal tract.

Laboratory Tests.—Stool examinations were positive in 66 per cent of the eighteen cases examined. Gastric analysis indicated achlorhydria to histamine stimulation in twenty-two of the twenty-three cases.

Roentgen Examinations.—Twenty cases diagnosed as having gastric carcinoma where the associated gastric polyps were not detected or ignored were excluded.

In seventy-seven patients examined for detection of polyps and differential diagnosis from cancer, a diagnosis of benign polypi was made in fifty-four instances. In three of these patients, malignancy was subsequently shown. A diagnosis of questionable malignancy was made in sixteen instances and operation advised. Six of these were subsequently proven malignant and ten benign.

In seven cases, polypi were missed by the roentgenologist.

Gastroscopy.—Gastric polyps were visualized in sixty-one of the sixty-six patients examined. A diagnosis of benign lesion was made in fifty-one cases and malignancy was subsequently shown present in three.

Ten cases were diagnosed as possibly malignant. Four of these were malignant and six benign.

By the combined efforts of the roentgenologist and gastroscopist only two of seventy-seven patients handled had surgery delayed in the presence of malignancy and this for nine and nineteen months.

Etiology.—The only significant finding relating to etiology was the frequent finding of an atrophic gastric mucosa with the polyps. Thus, in fifteen cases the occurrence of achlorhydria in the histamine provoked secretion, and/or gastric atrophy by gastroscopy antedated the detection of the gastric polyps from three to thirteen years.

Achlorhydria was present in 92.5 per cent and hypochlorhydria in 4.5 per cent, indicating a functional mucosal change in 97 per cent of cases.

Forty-four of forty-six patients whose mucosa was examined microscopically had a moderate to severe atrophy present.

Ten of the sixty-nine patients having benign polyps had pernicious anemia, a disease by definition requiring mucosal atrophy.

X-Ray Characteristics.—

1. Filling defect which is usually central, round or oval, sharply outlined and smooth in contour.
2. Peristalsis passes through the gastric walls in the region of the defect.
3. Gastric walls are flexible in the region of the tumor.
4. Defect is freely movable.
5. Pedicle can be demonstrated.
6. Defect may appear in duodenal bulb if the tumor prolapses through the pylorus.
7. The lumen of the stomach is not decreased in size.
8. With polyposis, the barium shadow of the stomach may show many small defects.

Characteristics of Gastric Polyps

Size.—Various characteristics of the polyps were studied for significant data. The size of the polyp was the most important factor determined. It is noted that of fifty-four polyps one centimeter or less in diameter only one was malignant. In twenty-nine polyps from one to two centimeters in diameter none were malignant. In thirteen cases over two centimeters in diameter seven were malignant.

Location.—The location of the polypi in the stomach is noted. The only significant figure is the one indicating that when a carcinoma is present it is more likely to be accompanied by benign polyps in the body.

Microscopic Character of Adenomas.—Examination of the adenomas under the microscope revealed data that, if substantiated, may be of assistance when satisfactory biopsies can be taken at gastroscopy.

Some of the adenomas showed epithelium having large cylindrical cells with dark-staining cytoplasm with no evidence of mucus formation. The nuclei were large, hyperchromatic and centrally located. This has been termed "irritative hyperplasia" or "indifferent epithelium" by others. In any case, we note that of the twenty-three adenomas associated with carcinoma thirteen showed the change and ten did not; while of the twenty-five cases not associated with malignancy, five showed the change and twenty did not.

Treatment

Surgical—

1. All polypi 2 cm. in diameter or larger.
2. All polypi causing symptoms, i.e., bleeding, obstruction, etc.
3. Polypi showing an increase in size.
4. Polypi whose roentgenological or gastroscopic appearance suggest malignancy.

The surgical treatment recommended is usually subtotal (75 per cent) gastric resection. Since total gastrectomy has a higher morbidity and mortality and gastric polyps and carcinoma occur with somewhat less frequency in this area; this procedure is recommended only when polypi are demonstrated in the cardia.

Observation.—Patients having polypi not qualifying for surgical therapy or having definite contraindications to gastric resection are recalled for a re-examination by the roentgenologist and gastroscopist at intervals of three or four months.

Prognosis.—In thirty-four patients followed from one to nine years for a total of 125 years, two patients developed carcinoma.

Conclusions

1. One-half of the patients having gastric polypi have no symptomatology indicating gastrointestinal disease.

2. Since gastric analysis shows achlorhydria or a marked hypochlorhydria in 97 per cent of cases this is an adequate screening test for selection of patients for roentgenologic and gastroscopic examination for detection of these precancerous lesions.

3. Roentgenological and gastroscopic examinations each permit the diagnosis of gastric polypi in 90 per cent of cases.

4. Pernicious anemia patients have gastric polypi much more frequently than other patients.

5. The chances of malignancy being present in lesions less than 2 centimeters in diameter are small, whereas in lesions over 2 centimeters they are about 1 in 2.

6. Chronic atrophic gastritis is present in nearly all cases developing adenomas.

7. The probability of a carcinoma developing in a patient diagnosed benign adenoma and observed for three and a half years would seem to be about one in thirteen.

Discussion

Dr. A. E. Regnier, Minneapolis: What percentage did you find of carcinoma involving polyps and what percentage grew separately?

Dr. Hay: Almost all were large enough so that it was impossible to tell whether they involved polyps.

Dr. Regnier: The polyp was an incidental finding in those twenty cases?

Dr. Hay: One patient had carcinoma in one part of the stomach, and the polyp was in another part. I believe there is as much evidence that a stomach with a severe atrophic gastritis, as in pernicious anemia, will develop malignancy as much as one with polyp.

Dr. Regnier: Do you have any figures on the number of malignancies where the carcinoma originated in polyps?

Dr. Hay: About twenty were operated on. Whether it was a malignant polyp or whether it was benign and became malignant, we can't tell.

Dr. George Fahr, Minneapolis: Am I to understand that you are suggesting we should operate on all cases of atrophic gastritis?

Dr. Hay: I feel here we have a little different situation. I think it is likely that patients with atrophic gastritis associated with polypi develop carcinoma no more often than patients with pernicious anemia. I would not suggest that every patient with pernicious anemia be operated upon but if he has a polyp which indicates any evidence of malignancy, then he should be operated. Most of them have the smaller polyp. If the original examiner—gastroscopist or roentgenologist—feels it is a possible malignancy, then operate. But if only one says it is malignant, then the patient is watched.

Dr. Fahr: How often do they return at 6-month intervals?

Dr. Hay: You have to talk it over with the patient and if they are not willing to come back you should proceed with operation. I recall one man who has had 7 or 8 gastroscopies; he would prefer to have them rather than operation.

Dr. Hanson: What years did you take these on?

Dr. Hay: From 1937 to 1947. A lot of patients were not included in the group. They ordinarily would have to be diagnosed twice to have been included. There were about 50 patients not included. This isn't the entire group.

Dr. J. B. Carey, Minneapolis: In answer to Dr. Fahr's question, our patients usually return three or four or six times and then are likely to become indifferent and do not come back.

I wish to commend the Academy for having heard the report of the largest number of gastric polyp cases that have been examined by any one group. No larger group is reported in the literature. As Dr. Hay suggested, our interest arose from the desire for detection of early manifestations of malignant disease. The gastric polyp, of course, was one point of attack. Beginning in 1936, I had seen more than one-hundred polyps by gastroscopic examinations. Some of these were eliminated; for instance, the flat and half-pea adenomas in the antrum region of the stomach with normal gastric mucosa. We had no reason to suspect these were malignant or probably ever would be.

Answering Dr. Regnier's question about the incidence of polyps is difficult because our material is heavily weighted by inclusion of many more patients with atrophic gastritis and achlorhydria than one would come upon ordinarily.

The interesting phase of the situation to me has been the polyps we decide are benign, accepting the responsibility of delaying or deferring operation, and choosing rather to observe them. I have a group of better than thirty that I have seen a number of times; in none of them has there been a suggestion of change in the direction of malignancy. Significant is the change in size and appearance of a polyp between one examination and another. The benign polyp does not change from time to time. If a polyp increases in size or spreads out into the mucosa, that polyp is likely to be malignant. Whether that was a benign adenoma and became malignant, we don't know. In a few cases, the pathologist has described metaplasia or other indifferent cell alterations. A polyp which once was declared to be benign and subsequently shows a change in size, color, or appears to be malignant, may have been an adenocarcinoma, but not recognized as such.

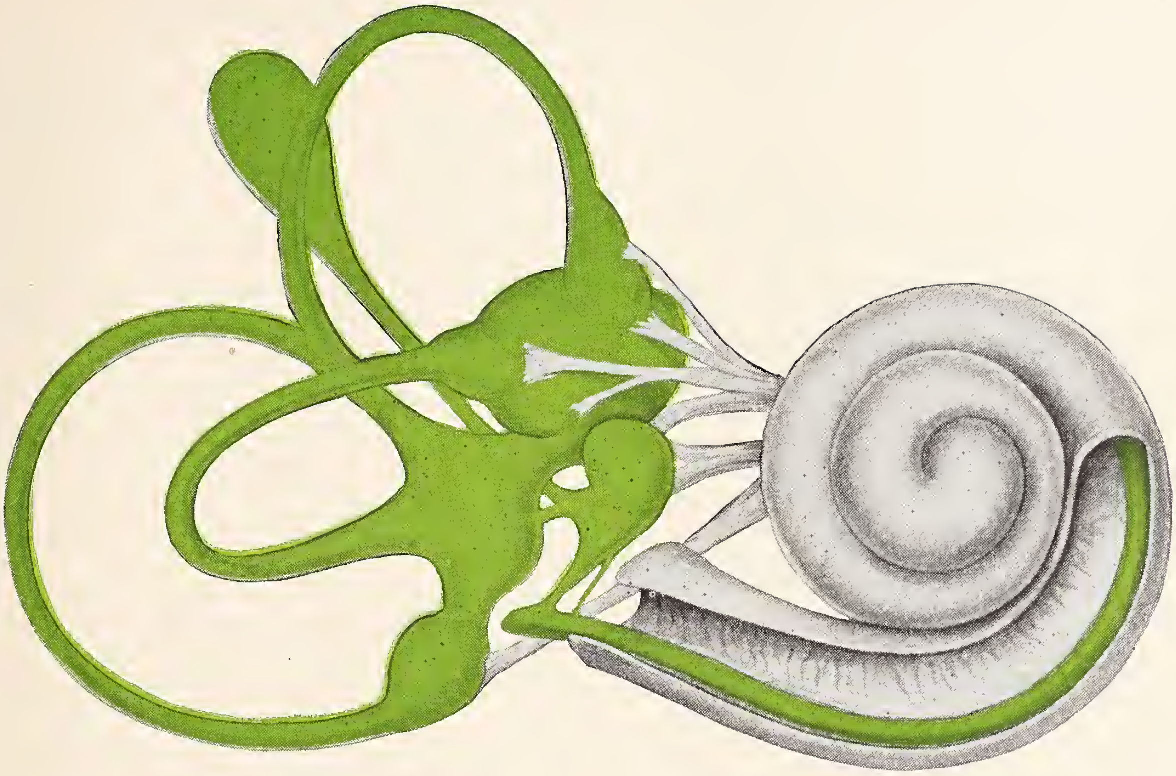
Dr. Hay: I would like to ask Dr. Fahr a question. I think the incidence of carcinoma of the stomach with pernicious anemia is somewhere around 8 per cent. How low would the surgeon have to get his mortality before he would advise operation?

Dr. Fahr: The atrophic gastritis goes on a long, long time before it becomes malignant. Then there comes a time when the patient comes for re-examination and you make the diagnosis that it is malignant. It is pretty hard to get the patients back for re-examination—not because a good gastroscopist cannot do it without the patients minding; what they do mind is coming back again and again and nothing coming of it. I would not require everyone with pernicious anemia to have a gastrectomy because most of these patients would not live long enough to develop carcinoma. A checkup with gastroscopy and gastrointestinal x-ray at six-month intervals would probably be attended with good results.

Dr. Hay: I think I would agree that with pernicious anemia the six-month interval should be recommended.

The meeting was adjourned.

Wallace P. Ritchie, M.D., *Secretary*



Detail of the Labyrinthine Structure

"The prophylactic value of Dramamine was conclusively demonstrated among 170 passengers who volunteered the information that they were unusually susceptible to motion sickness. . . . There was complete relief (freedom from any signs or symptoms of airsickness) in 152 cases or 89.5 per cent; . . . ."

—Tuttle, A. D.: Special Breakdown of Case Histories, presented at the Airlines Medical Directors Association Meeting, New York, N. Y., Aug. 28, 1949.

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COUNCIL ON PHARMACY AND CHEMISTRY
AMERICAN MEDICAL ASSOCIATION

RESEARCH IN THE SERVICE OF MEDICINE SEARLE

✦ Reports and Announcements ✦

PHYSICIANS' ART SHOW

The American Physicians' Art Association will have an art exhibit, as usual, during the AMA convention at Atlantic City, N. J., June 11 to 15. Any physician in the United States, Canada and Hawaii desiring to participate in this show should communicate with Dr. F. H. Redewill, Secretary, American Physicians Art Association, 760 Market Street, San Francisco 2, California, for particulars.

J. Henry Helser & Co., Inc., investment managers, are the new sponsors of the American Physicians Art Association and will award 200 trophies besides a special Helser Trophy—a large decorative cup depicting Yankee ingenuity. This cup is to be awarded for art work done in any medium. Also the large Popularity Trophy will be awarded to the owner of the art piece receiving the most popular votes during the AMA convention. Over 4000 members of the American Physicians Art Association shortly will receive entry blanks, shipping labels and rules about this fourteenth art exhibition.

The Annual Art Banquet will be held on the evening of June 12 at the Marlborough-Blenheim Hotel, Atlantic City, N. J.

POSTGRADUATE COURSE IN ALLERGY

A postgraduate course in allergy will be offered by the American Academy of Allergy on June 14, 15, and 16 in Montreal, Canada. It will be sponsored by the Faculty of Medicine, McGill University, and will be held at the Royal Victoria Hospital in Montreal.

Any interested physician in the United States or Canada may attend. Fee for the course is $40. Applications can be sent to Bram Rose, M.D., Royal Victoria Hospital, Montreal 2, Canada.

Sixteen speakers will present the course, nine of whom are on the faculty of medicine at McGill University. In addition to general allergy subjects there will be lectures on "Otorhinology in Relation to Allergy," "Allergic Dermatoses," "Allergy in Children," and "Psychiatric Aspects in Allergy."

AMERICAN COLLEGE OF CHEST PHYSICIANS

The seventeenth annual meeting of the American College of Chest Physicians will be held at the Ambassador Hotel, Atlantic City, New Jersey, June 7 through 10. An interesting scientific program has been arranged for presentation at the meeting.

The Board of Examiners of the College has announced that the next oral and written examinations for fellowship will be held in Atlantic City on June 7. Candidates who would like to take the examinations for fellowship should contact the Executive Secretary, American College of Chest Physicians, 500 North Dearborn Street, Chicago 10, Illinois.

The convocation ceremonies will be held at the Ambassador Hotel, Atlantic City, on Saturday, June 9, at which time certificates will be awarded to new fellows of the College.

Dr. John Briggs, Saint Paul, is a regent of the College; Dr. Herman J. Moersch, Rochester, serves as governor of the College for Minnesota. Dr. J. Arthur Myers, Minneapolis, will present a paper on "The Effect of the Diminishing Incidence of Primary Infection on the Tuberculosis Control Program" in the scientific program, and Dr. N. K. Jensen, Minneapolis, will present the subject of "Recovery of Pulmonary Function after Crushing Injuries of the Chest." The x-ray conference to be presented at the annual meeting will be conducted by Dr. Leo G. Rigler, Minneapolis.

GEORGE E. FAHR LECTURE

Dr. George E. Burch, professor and chairman, Department of Medicine, Tulane University of Louisiana, New Orleans, will deliver the first George E. Fahr Lecture on May 8 on the University of Minnesota campus. The lectureship, which will be given annually, is financed through a gift which former students of Dr. Fahr have presented to the Minnesota Medical Foundation.

Dr. Burch will also participate in a continuation course in electrocardiography for general physicians on May 7 to 11 at the Center for Continuation Study.

SISTER KENNY FOUNDATION SCHOLARSHIPS

The Sister Elizabeth Kenny Foundation, with national offices in Minneapolis, announces availability of Kenny therapist training scholarships totaling $5,400 each for registered nurses and physical therapists. Designed to qualify trainees to become Kenny therapists in the treatment of poliomyelitis, the twenty-four-month course will start June 20, 1951, in Minneapolis.

The purpose of the course is to prepare carefully-selected persons who are interested in scientific postgraduate training in the management of polio, under the supervision of physicians and according to the techniques established by Sister Kenny. Scholarships are paid at the rate of $225 per month, and tuition for all courses will be provided by the Kenny Foundation.

Persons who successfully complete the course for Kenny Therapists will be given a certificate by the Kenny Foundation. The certificate indicates the ability of the holder to treat polio and to supervise others in its management, according to the techniques established by Sister Kenny.

Upon graduation, Kenny therapists are assured of assignment to a Kenny treatment facility. Salaries start at $285 a month and reach $355 through automatic increases at six month intervals. Additional opportunities for advancement, with increased compensation, are available. Two weeks vacation with pay is provided after one year of service, three weeks after two years

(Continued on Page 368)

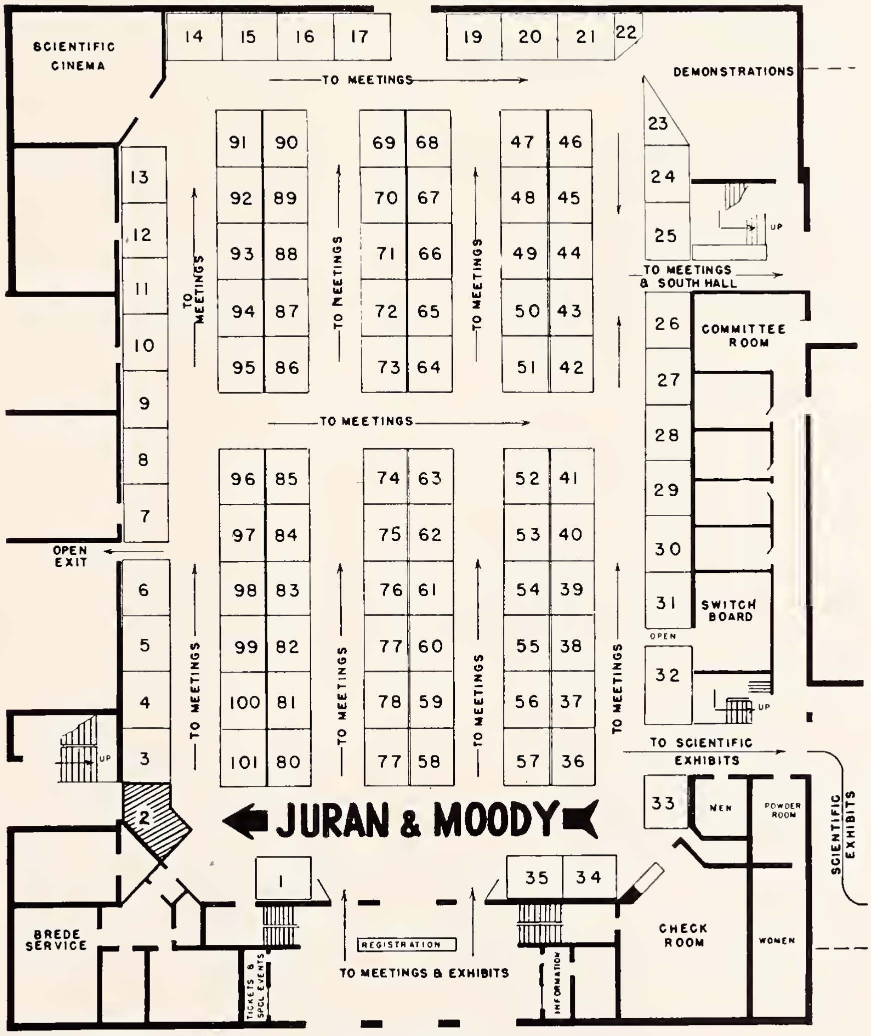
98th Annual Convention

Minnesota State Medical Association

ROCHESTER, MINNESOTA

April 30th—May 2nd, 1951

DIAGRAM OF EXHIBIT HALL—MAYO CIVIC AUDITORIUM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Relationship of Stress to Autonomic Lability

Studies in psychosomatics have shown that functional disorders often are a result of the patient's inability to adjust to emotionally stressful situations (stressor factors).

Nervous tension and chronic anxiety, discharged through a labile Autonomic Nervous System, can cause somatic disturbance. [1,2.] Such states may involve any one of the organ systems or several at one time. [1,3.] The outline below is designed to relate gastrointestinal and cardiovascular symptomatology to the exaggerated response of the autonomic nervous system.

	Physiologic Effects of Autonomic Discharge	
	Sympathetic	**Parasympathetic**
Gastro-intestinal System	Hypomotility Intestinal Atony Hyposecretion Reduced salivation	Hypermotility Gastrointestinal spasm Hypersecretion
Cardio-vascular System	Rapid heart rate Peripheral vaso-constriction	Slow heart rate Vasodilatation
Functional Manifesta-tions	Palpitation Tachycardia Elevated blood pressure Dry mouth and throat	Heartburn Nausea-vomiting Low blood pressure Colonic spasm

The data here tabulated is from references [3,4,5,6,7,] given below.

When the clinical picture is suggestive of functional disorder, the diagnosis is supported by the presence of the following indications of autonomic lability:

Variable Blood Pressure
Body Temperature Variations
Changing pulse rate
Deviations in B. M. R.
Exaggerated Cold Pressure Reflex
Oculo-Cardiac Reflex Abnormalities
Glucose Tolerance Alterations

Therapy in these cases is directed toward: 1) relieving the somatic disturbance to prepare the patient for psychotherapy*; 2) guidance in making adjustment to stressful situations and correction of unhealthy attitudes.

*Drug treatment using adrenergic and cholinergic blocking agents in conjunction with sedatives. [8,9,10.]

1. Ebaugh, F.: Postgrad. Med. *4:* 208, 1948. 2. Wilbur, D.: J.A.M.A. *141:* 1199, 1949. 3. Williams, E. and Carmichael, C.: J. Nat'l. Med. Assoc. *42:* 32, 1950. 4. Goodman, L. and Gilman, A.: The Pharmacological Basis of Therapeutics, The Macmillan Co., 1941. 5. Katz, L. et al: Ann. Int. Med. *27:* 261, 1947. 6. Weiss, E. et al: Am. J. Psychiat. *107:* 264, 1950. 7. Alvarez, W.: Chicago Med. Soc. Bulletin, 581, 1950. 8. Rakoff, A.: A Course in Practical Therapeutics, Williams and Wilkins, 1948. 9. Karnosh, L. and Zucker, E.: A Handbook of Psychiatry. C. V. Mosby Co., 1945. 10. Harris, L.: Canad. M.A.J. *58:* 251, 1948.

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(Continued from Page 366)

and four weeks at the end of three years and each year thereafter.

Complete details and an application blank may be obtained by writing the Director of Training, Sister Elizabeth Kenny Foundation, 1800 Chicago Avenue, Minneapolis 4, Minn.

CONTINUATION COURSES

Atomic Medicine.—The University of Minnesota announces a continuation course in atomic medicine to be given to all physicians on April 26, 27, and 28. The course will emphasize the basis of and the effects of the atomic bomb with particular stress on pathological and clinical findings and organization for defense. Dr. George M. Lyon, chief of the Radioisotope Section of the Veterans Administration, Washington, D. C., will be the guest speaker. The course will be given without tuition. However, registration must be made early.

General Surgery.—A continuation course in general surgery will be given on May 17, 18, and 19 at the University of Minnesota Center for Continuation Study. This course is for general surgeons and physicians and will stress gastrointestinal surgery and diagnosis. Dr. Walter G. Maddock, professor, Department of Surgery, Northwestern University Medical School, Chicago, Illinois, will be the guest faculty member for the course.

Cardiovascular Diseases.—Dr. Irving S. Wright, professor of clinical medicine, Cornell University, New York City, will participate in a continuation course in cardiovascular diseases to be presented at the Center for Continuation Study, May 24 to 26. The course is sponsored by the Minnesota Heart Association and will emphasize the diagnosis and treatment of the most common cardiovascular disorders.

BLUE EARTH COUNTY SOCIETY

The Blue Earth County Medical Society has initiated an x-ray conference following their regular monthly meetings. These meetings are held on the last Monday of the month at 8:00 p.m. at the Mankato Clinic in Mankato, Minnesota. The x-ray conference is conducted by Dr. L. M. Hammar, roentgenologists at the Mankato Clinic. Physicians in the surrounding areas are invited to participate in this conference by bringing interesting and puzzling x-rays. They should be prepared to give a brief case history. Refreshments are served following the meeting. The conference has been well received by the Blue Earth County physicians.

The average public relations budget for state societies with 1,000 to 5,000 members in 1950 totaled about $16,000. In 1951, these societies are budgeting approximately $18,700 for public relations, an increase of more than $2,000 over 1950. Conversely, the larger societies (5.000 and over) who budgeted on an average of $72,800 in 1950 are alloting the reduced sum of about $65,000 for PR in 1951.

Societies under 1,000 members averaged about $6,600 for PR in 1950. Not enough 1951 budgets of these societies have been allocated at this time to compute the 1951 budget average.—*The PR Doctor,* March 14, 1951.

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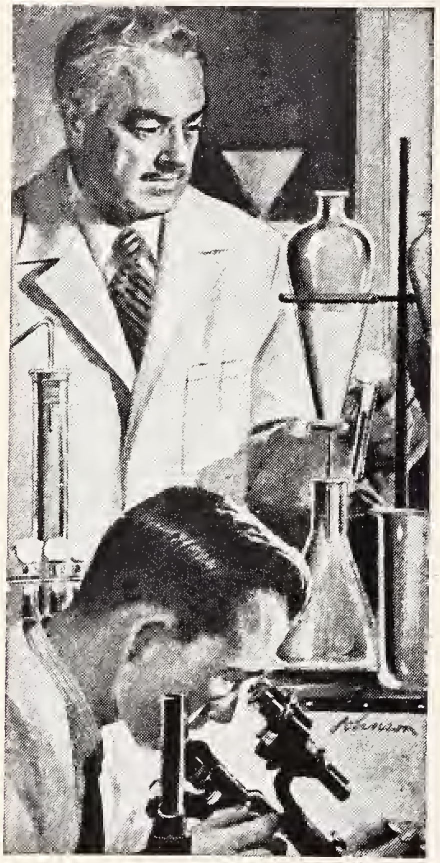

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Woman's Auxiliary

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Mrs. E. D. Rooke, President,
OHFD Medical Auxiliary

Dear Auxiliary Members:

We of the Olmsted-Houston-Fillmore-Dodge County Medical Auxiliary wish to invite you to come and see us at the state convention in Rochester, April 30, May 1 and 2.

We are looking forward to your visit. Plan to make your stay a long one—we shall try to make it a happy one.

GENERAL PROGRAM POINTERS OUTLINED

Mrs. David J. Halpern, Chairman
Program and Health Education Committee

1. Strive to make the auxiliary programs more instructive. Have specific programs, study and discuss these in meetings. Get *authentic* information so that facts can be given when a question is asked.

2. Vary ways of presenting the program. Get as many to participate as possible.

(a) workshop, (b) lecturer, (c) panel discussion, (d) movies.

3. Entertainment may be included. However, do not have the percentage of entertainment exceed the instructive part of the program. Any program worth giving time to is one which promotes further thinking or action of some sort.

4. Use pledge of loyalty to Woman's Auxiliary at local meetings.

5. Consult and seek advice of the local medical society before participating in any new program.

Program Material Listed

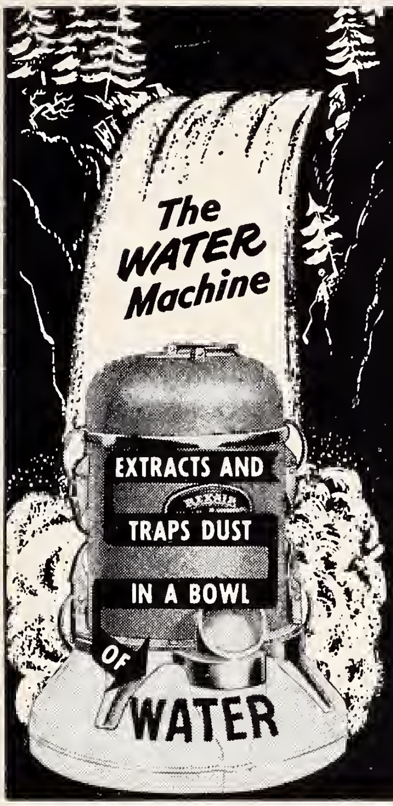
1. Continue to concentrate on legislative issues, especially National Compulsory Health Insurance. Be on the alert for "fringe bills."

2. Each community has different health problems. Know each community and discuss local health problems. Know and study local health agencies, develop a community health council and study the school health program.

3. The American Medical Association has its "Twelve Point Program." Five of these are especially suitable to the type of work auxiliary women are qualified to do. Number five, medical facilities, touches the rural health problem. The others are mental hygiene, public health, chronically ill and aged, and health education.

4. Study and promote "Today's Health," the National Bulletin, the Auxiliary page of Minnesota Medicine, and the Auxiliary Newsletters.

5. Members should familiarize themselves with the voluntary prepayment medical and hospital care plans in the state.



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6. Consider the possibility of a nurse recruitment program.

7. Each auxiliary should have a civilian defense program.

Each member should do her bit to "promote better health the American way." If all members do their part, the reports at the close of 1950-1951 will be most gratifying.

CHAIRMAN STRESSES PUBLIC RELATIONS

Mrs. L. J. Leonard, Public Relations Chairman

Public relations is actually twofold—informing the lay people how they may procure and better understand data relating to means of obtaining better health for them and their children and, convincing the public of the interest and sincerity with which the medical profession is striving to protect their future medical needs.

County presidents should avail themselves of the various radio scripts obtainable through the Minnesota State Medical Association office. They will help in either planning a radio program or arranging for spot announcements over local stations.

Many new and instructive health films on cancer, tuberculosis and diabetes may be shown to a community group in local high schools, where they have facilities to show sound films. Other films on civilian defense, which are very timely, may also be obtained.

Convince people of interest in their health, make known the available health facilities, encourage factual study and discussions of local problems, help church groups, associate with every type of health campaign such as TB seal sales, cancer drives and heart fund drives, etc.

Members hear continually of the great shortage in the nursing field. Plan programs, as some counties have done, where high school girls are entertained and the requirements and benefits of a nursing career explained to them. In this regard, perhaps a nursing scholarship could be contributed, as has been done in some county auxiliaries. Inquiry might also be made as to what hospitals offer scholarships—it might provide just the aid necessary to some girl who could not afford it otherwise.

The auxiliary is very proud of the success of the AMA advertising campaign conducted by Whitaker and Baxter. Advertisements appeared in 10,300 newspapers and Sunday supplements, fifty-five national magazines, and announcements were made over 1,600 radio stations. In addition, thousands of allied professions, lay organizations, business and industry added their support. Much has been accomplished but a great deal remains to be done. Many people still do not know the facts.

As a suggestion to further inform the general public, why wouldn't it be a good idea to encourage high school debating on this subject? So much positive material is available for their use and it would be one way of getting authentic information to them. The State Medical Association office, 496 Lowry Medical Arts Building, St. Paul 2, can supply this data.

Those members who have not read "Santa Claus, M.D." written by Dr. W. W. Bauer, should surely resolve to do so. It is a 220-page book, humorous and statistical, and explains just why the voluntary way is the American way. After reading it, members will have a very good foundation of fact which they need not hestitate to expound. It sells for $2.75 and may be obtained from the Bobbs-Merrill Company, Inc., Indianapolis 7, Indiana, or the book departments of most department stores.

In Memoriam

ELLERY LESLIE ARMSTRONG

Dr. E. L. Armstrong, specialist in eye and ear disease at Duluth, Minnesota, died on January 2, 1951, after a brief illness.

Dr. Armstrong was born in Minneapolis, August 19, 1889. He graduated from the University of Minnesota medical school in 1916 and interned at the University Hospital in Minneapolis.

He practiced at Park Rapids from 1916 to 1919 before taking postgraduate work in ophthalmology and otolaryngology at the University of Minnesota from 1919 to 1921.

Dr. Armstrong was a Fellow of the American College of Surgeons and of the American Academy of Ophthalmology and Otolaryngology. He was a member of the St. Louis County Medical Society, the Minnesota State Medical Association and the American Medical Association. He was also a member of the Pilgrim Lutheran Church, the Scottish Rite Masons, the Duluth Kiwanis Club and Phi Beta Pi medical fraternity.

He is survived by his wife, three sons, Dr. Frederick Armstrong of Minneapolis, Leslie and Robert of Duluth, and a daughter, Sally, also of Duluth.

S. JOHN LEHMAN

Dr. S. J. Lehman, of Brainerd, died January 10, 1951, at a hotel in St. Cloud, Minnesota. He was thirty-two years of age.

Dr. Lehman was born at Glendive, Montana, February 18, 1918. He graduated from the University of Minnesota medical school in 1943 and interned at Miller Hospital in Saint Paul. He spent three years taking postgraduate work at the University of Minnesota and was a year with Dr. Frank E. Burch of Saint Paul.

He had been with the Bratrud Clinic at Thief River Falls before locating at Brainerd. He was a veteran of World War II and a member of the Plymouth Lodge, A. F. & A. M., Minneapolis, the Elks and Eagles lodge and the Rotary Club.

Dr. Lehman was married in 1942 to Bernice Lundgren of Minneapolis. Surviving are his widow and triplet daughters, Nancy, Susan and Caryl. A brother, six sisters and his parents, Mr. and Mrs. S. S. Lehman of Lindsey, Montana, also survive him.

RAY B. McCARTY

Dr. Ray B. McCarty died April 15, 1950, at Riverside, California.

Ray McCarty was born at Corona, California, September 1, 1899. He received his A.B. degree from the University of California in 1921 and his M.D. degree from the University of Pennsylvania in 1925. He entered the Mayo Foundation October 1, 1927, received the degree of Master of Surgery from the University of Minnesota in 1930 and was a resident surgeon at Colonial Hospital until 1931. He had practiced surgery in Riverside, California, since 1931.

Dr. McCarty was a member of Alpha Omega Alpha, Nu Sigma Nu and Sigma Pi fraternities and also of the American College of Surgeons.

EDWARD T. SANDERSON

Dr. Edward Theodore Sanderson, eldest son of Dr. Samuel E. and Elisa Sanderson, was born April 20, 1875, in Boone, Iowa. In his early childhood, the family moved to Minneota, Minnesota, where his father began the practice of general medicine. In his mid-teens it became necessary for him to assume full responsibility for his own support. He worked for several years as auditor for the C. A. Smith Lumber Company traveling between various mid-west towns, and for two years as a bank cashier. He then resumed his education by attending St. Olaf Academy, Northfield, Minnesota, from 1900-1901. The following year he matriculated at Bennett Medical College, the present Loyola University Medical School, of Chicago, Illinois, from which he received his medical diploma in 1905.

Following his graduation, he became professor of Anatomy and secretary and registrar of the College and maintained an office in Chicago for one year. He was married on December 31, 1906, to Miss Harriet Wallin of Eastman, Wisconsin. Due to his father's ill health, he returned to Minneota where he assumed the medical practice and served the community in that capacity for forty years. His practice was typical of the horse and buggy doctor of that era. During his active years, he delivered more than 5,000 babies in addition to his general medical practice. In 1945, he was forced to retire because of illness.

Dr. Sanderson held a long record in the service of the state medical profession. In 1917, he was appointed to the first State Advisory Commission on Tuberculosis. This commission carried on the first work in the investigation of tuberculosis by the State of Minnesota. After five years of service on this commission, he was appointed to the State Board of Medical Examiners in 1922. He remained on the board until 1932 and served as president and executive secretary for several years. This was the first time in the history of the state that the secretaryship of the examining board had been earned by a country doctor. He was president of the Minnesota State Medical Association in 1924. He was one of the founders and a past president of the Lyon-Lincoln Medical Society. In addition to these honors by the State of Minnesota, he was awarded citations and medals from the Presidents of the United States for the examination of selectees in both World Wars. He was a member of the American Medical Association, the Minnesota Medical Association and the Lyon-Lincoln Medical Society during his entire practice.

He served as mayor and councilman of Minneota for several terms and was president of the school board of the Minneota Public Schools for many years.

(Continued on Page 374)

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EDWARD T. SANDERSON

(Continued from Page 372)

For the past five years, he and Mrs. Sanderson have lived in Alexandria, Minnesota, where he passed away on March 16, 1951 at the age of seventy-six years.

He is survived by his widow, Mrs. Harriet W. Sanderson; four children: Mrs. George W. Clifford of Alexandria, Minnesota; Edward W. of New York, New York; Dr. Eric R., of Seattle, Washington; Margaret H. of Chicago, Illinois; and seven grandchildren. He is also survived by a brother, Dr. A. G. Sanderson of Anoka, Minnesota, and a sister, Miss Sara T. Sanderson of Albuquerque, New Mexico.

Funeral services were held at the First English Lutheran Church in Alexandria, Minnesota, on March 20, 1951, with Reverend Martin T. Jensen officiating. Interment was at Kinkaid Cemetery, Alexandria.

MARK H. TIBBETTS

Dr. Mark H. Tibbetts, orthopedic surgeon of Duluth, died January 28, 1951, in his hotel room while in Chicago attending a convention of orthopedic surgeons.

Mark Tibbetts was born at Ogden, Iowa, September 18, 1889. He attended Parsons College at Fairfield, Iowa, where he obtained a B.S. degree in 1912. His M.D. degree was obtained from Johns Hopkins Medical School in 1917. He interned two years at Johns Hopkins Hospital, Baltimore.

Dr. Tibbetts was a member of the St. Louis County Medical Society, the Minnesota State Medical Association and the American Medical Association.

MICHAEL ZLATOVSKY

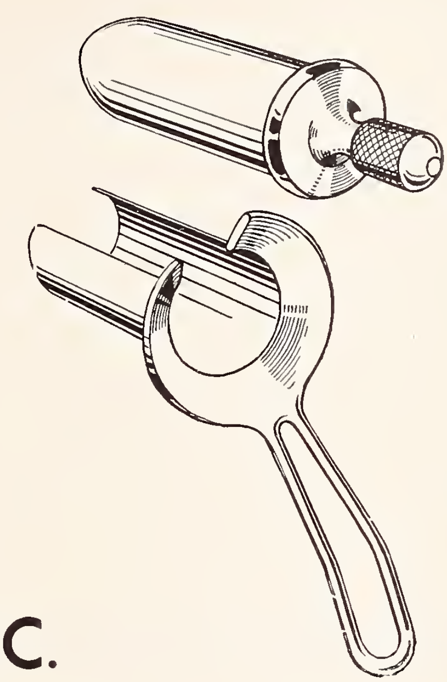
Dr. Michael Zlatovsky of Duluth died January 15, 1951, at the age of seventy. He was born in Russia, July 1, 1876.

Dr. Zlatovsky graduated from the University of Kiev in Russia in 1912 and had practiced in Duluth since 1923. He became naturalized in 1929.

He was formerly a member of the St. Louis County Medical Society, the Minnesota State Medical Association and the American Medical Association.

Dr. Zlatovsky is survived by his son, George, of Paris, France, and his daughter, Mrs. Michael Tennenbaum of Chicago.

Still more recently, another influence has risen to increase the demand for hospitals. This is voluntary insurance against the costs of medical care. When such protection is carried, it is perhaps a human trait to exploit it. Someone has said that there is a curious defect in our moral code that makes it no crime to defraud an insurance company. The instance of so-called health insurance appears to support this contention. Too often, and perhaps without realizing that he is abusing his privilege and thereby raising the cost of insurance, the protected person demands hospitalization for causes not specified in the benefits. It is not easy for a physician, however conscientious, to oppose such a demand. The constantly increasing utilization of the benefits of voluntary medical-care insurance has added to its cost almost as much as has the rising cost of hospital operation.—Paul R. Hawley, M.D., New England Journal of Medicine, February 15, 1951.



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Surgery of Colon and Rectum, one week, starting May 14, June 4.
Esophageal Surgery, one week, starting June 4.
Thoracic Surgery one week, starting June 11.
Gallbladder Surgery, ten hours, starting June 18.
Breast and Thyroid Surgery, one week, starting June 25.

GYNECOLOGY—Intensive Course, two weeks, starting April 16, June 18.
Vaginal Approach to Pelvic Surgery, one week, starting May 7, June 11.

OBSTETRICS—Intensive Course, two weeks, starting June 4.

MEDICINE—Intensive General Course, two weeks, starting April 23.
Gastroenterology, two weeks starting May 14.
Gastroscopy, two weeks, starting May 14.
Electrocardiography and Heart Disease, two weeks, starting July 16.

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Cerebral Palsy, two weeks, starting July 9.
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Of General Interest

Dr. Kenneth L. Nelson announced on March 14 that he had terminated his practice in Balaton and was moving from the city. The reason for his move was said to be the unavailability of rental property for housing. Dr. Nelson had practiced in Balaton for slightly more than one year.

* * *

At a meeting of the board of directors and medical staff of the Riverview Memorial Hospital, West Saint Paul, on March 14, **Dr. Kano Ikeda** of Saint Paul spoke on new laboratory facilities for the hospital. Chief topic of discussion at the meeting was ways and means of improving the hospital.

* * *

Dr. A. W. Adson, Rochester, was principal speaker at a meeting of the Optimist Club in Saint Paul on March 15. He discussed the advances made by medical science.

* * *

Dr. Thomas J. Devereaux, Wayzata, suffered a fractured ankle and a wrist when he slipped on an icy street while making a professional call in Minneapolis on March 7.

* * *

The new twenty-two-story **Mayo Memorial Medical Center**, which is now under construction, at the University of Minnesota, will not be enough to meet the medical school's need for space during the next fifty years, a medical school committee reported early in March. The committee was headed by **Dr. Gaylord W. Anderson,** director of the School of Public Health.

The committee suggested that in the long-range program space would be needed for research in various fields, facilities for convalescent care, expanded facilities for rehabilitation work, a "hospital-hotel" for outpatients, relocation of the state health department building and the pharmacy building, housing facilities for students and staff members, and greatly increased parking areas.

* * *

Dr. J. G. Beaton, formerly a staff member of the Veterans Hospital at Fargo, North Dakota, has become affiliated with the Fritsche Clinic in New Ulm. He is specializing in the practice of internal medicine.

A graduate of the University of Minnesota Medical School, Dr. Beaton served his internship at the Marine Hospital in Baltimore, Maryland. He then joined the U. S. Public Health Service and was assigned to the Coast Guard. He also served on a troop transport in the Pacific. Following his discharge from service, he took postgraduate work at the Wayne County General Hospital in Detroit, Michigan. In June, 1948, he joined the staff of the Fargo Veterans Hospital, where he specialized in internal medicine.

After six months without a resident physician, Erskine acquired one on February 26 when **Dr. Lawrence O. Pearson** opened offices there for the practice of medicine. Dr. Pearson formerly practiced at Pelican Rapids.

* * *

Dr. Gilbert S. Wheeler, formerly of Portland, North Dakota, became associated in practice with **Dr. D. O. Berge** in Roseau on February 24. A graduate of the University of Manitoba Medical College, Dr. Wheeler practiced at Portland for the past two years.

* * *

Principal speaker at a meeting of the Stewartville Parent-Teacher Association in Stewartville on February 8 was **Dr. E. D. Henderson** of Rochester. He spoke on "Common Foot Ailments in Children."

* * *

Dr. John M. Grogan announced on March 1 that he was planning to discontinue his medical practice in Ceylon. He stated that shortly after June 1 he was going to move to Denver, Colorado, to study radiology at the Colorado General Hospital. Dr. Grogan has practiced at Ceylon since April, 1946.

* * *

Dr. Harold S. Diehl, dean of medical sciences at the University of Minnesota, was one of several witnesses before a Senate subcommittee early in March in Washington, D. C., investigating the dismissal of Dr. Paul Magnuson as Veterans Administration medical director. Dr. Diehl warned the subcommittee that Veterans Administration policies may damage medical care programs in VA hospitals in Minnesota and throughout the country.

As chairman of the dean's committee for the Minneapolis Veterans Hospital, Dr. Diehl said that "over the past couple of years it has become increasingly difficult to get many things done which in the judgment of the staff are important to the program." He stated that "more and more matters must be referred to Washington, frequently with extensive correspondence, prolonged delays, and all too frequently with final decisions made on the basis of the average VA hospital without regard to the local situation."

* * *

Dr. Charles E. Rea, Saint Paul, was the guest speaker at a meeting of the Faribault Business and Professional Women's Club on March 5 in Faribault. He spoke on the subject of socialized medicine.

* * *

Early in March the **University of Minnesota** received a grant of $56,423 from the United States Public Health Service for research on cancer, C-reactive proteins, gastric secretion, experimental diabetes study, influence of aureomycin, and research on the effect of blood glucose levels in rats.

(Continued on Page 378)

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(Continued from Page 376)

Dr. John E. Hildebrand, formerly of Detroit, Michigan, has become associated in practice with **Dr. J. K. Hartjen** in Bemidji. A graduate of Wayne University in Detroit, Dr. Hildebrand has had postgraduate training in obstetrics and pediatrics.

* * *

In a special appeal to the State Legislature on March 12, **Dr. Ralph Rossen,** mental health commissioner of Minnesota, described the crowded conditions still existing in state mental hospitals. His report of the serious overcrowding was based on personal visits made to several state hospitals by a special committee, including himself.

Dr. Rossen called on the Legislature to create an interim commission consisting of at least three legislators, two or three physicians and at least one hospital superintendent to investigate the problem. He stated that "once the legislators see the picture, I am sure that they will come to the patients' aid."

* * *

Dr. Frederick A. Figi, Rochester, presented a paper entitled "Plastic Procedures about the Eyelids" at a meeting of the Minnesota Academy of Ophthalmology and Otolaryngology in Minneapolis on March 9.

* * *

Dr. James J. Anderson, who formerly practiced in Saint Paul, has moved to Mankato and opened offices for the practice of medicine. He specializes in obstetrics and gynecology.

* * *

Dr. Florence Jacqueline Bouthilet, Saint Paul, was married to Kenneth Benjamin Fick, Minneapolis, on March 31. The wedding was held in Immanuel Lutheran Church. Dr. Bouthilet is a graduate of the University of Minnesota Medical School.

* * *

Guest speaker at a meeting of the Mankato Business and Professional Women's Club on February 20 was **Dr. John J. Eustermann** of the Mankato Clinic. The title of his talk was "Recent Advances in the Treatment of Heart Disease."

* * *

Two Minneapolis physicians were among the guest speakers at the fourteenth annual meeting of the New Orleans Graduate Medical Assembly in New Orleans on March 5 through 8. They were **Dr. Albert V. Stoesser** and **Dr. John L. McKelvey.**

Dr. Stoesser spoke on "Use of Cortisone and ACTH in Diseases of Children," "Atopic Eczema in Infancy and Early Childhood," and "New Concepts in the Therapy of Respiratory Infection in Children."

Dr. McKelvey discussed "Studies of the Therapy of Adenocarcinoma of the Endometrium," "Endometrial Hyperplasia and Some of Its Problems," and "Tuberculosis of the Female Generative Tract."

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Dr. M. Y. Colby, Jr., and **Dr. M. M. D. Williams,** both of Rochester, presented papers at the meeting of the Minnesota Radiological Society in Minneapolis on February 24. Dr. Colby's paper was entitled "The Effect of X-Rays on the Normal Gland." The title of Dr. Williams' paper was "New Tools for the Radiologists."

* * *

Dr. Harry A. Palmer, Blackduck, was host on February 15 to staff members of the Bemidji Clinic who went to Blackduck to inspect Dr. Palmer's new clinic building, equipment and facilities. Included in the group entertained by Dr. Palmer were **Dr. W. J. Deweese, Dr. D. D. Whittemore** and **Dr. H. M. Wikoff** of Bemidji.

* * *

After practicing at Jordan since 1948, **Dr. Frederick M. Hass** has moved to Minneapolis to take over the practice of a physician called into the Armed Services.

* * *

Seventeen fellowships were recently awarded to employment and placement counselors for a special course designed to help meet the employment problems of handicapped workers. The fellowships, totaling $5,000, were for a course held in New York from March 12 to April 6 and were awarded jointly by Alpha Gamma Delta, international women's fraternity, and the National Society for Crippled Children and Adults. The counselor training course was part of the national cerebral palsy program started five years ago to provide treatment, training and employment services for victims of cerebral palsy. The purpose of the counselor training program is to encourage public and private agencies to increase their services for the severely handicapped.

* * *

It was announced on March 8 that the Rockefeller Foundation had awarded a grant of $27,300 to the **Dight Institute** at the University of Minnesota for research in human genetics. The grant, which becomes available on July 1 for a three-year period, will be used to develop better methods of aiding people with problems in human genetics.

HOSPITAL NEWS

Results of recent staff elections at several Minnesota hospitals are as follows:

St. Cloud Hospital, St. Cloud.—Dr. H. B. Clark, chief-of-staff; Dr. Charles Brigham, Jr., vice president; Dr. Louis Wittrock, secretary.

Miller Memorial Hospital, Duluth.—Dr. Earl E. Barrett, chief-of-staff; Dr. H. J. Jeronimus, vice chief-of-staff; Dr. Kenneth Teich, secretary-of-staff.

Municipal Hospital, Sleepy Eye.—Dr. William Johnson, president; Dr. E. E. Keithahn, vice president; Dr. Glenn Nelson, secretary-treasurer.

Swedish Hospital, Minneapolis.—Dr. Harold T. Gustason, president; Dr. A. N. Russeth, vice president.

Northwestern Hospital, Thief River Falls.—Formed by a merger of St. Luke's Hospital and

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Mercy Hospital. Dr. O. F. Mellby, president; Dr. H. C. Johnson, vice president; Dr. Neil D. Nickerson, secretary.

St. Mary's Hospital, Duluth.—Dr. Keith R. Fawcett, chief-of-staff.

St. Joseph's Hospital, Brainerd.—Dr. G. I. Badeaux, chief-of-staff; Dr. J. A. Thabes, Jr., vice chief-of-staff; Dr. Helen Longfellow, secretary-treasurer.

St. Luke's Hospital, Duluth.—Dr. R. E. Nutting, chief-of-staff; Dr. Sam Boyer, Jr., vice chief-of-staff; Dr. Karl Emanuel, secretary-treasurer.

St. Ansgar Hospital, Moorhead.—Dr. H. G. Rice, president; Dr. James Oliver, vice president; Dr. Carl Simison, secretary-treasurer.

St. Joseph's Hospital, Saint Paul—Dr. Joseph M. Ryan, chief-of-staff, Dr. Jerome A. Hilger, vice president; Dr. J. P. Meddelman, secretary.

St. Mary's Hospital, Minneapolis.—Dr. Leo Culligan, chief-of-staff; Dr. Leonard Lang, vice president; Dr. W. L. Herbert, secretary-treasurer.

Fairview Hospital, Minneapolis.—Dr. Myron Lysne, president; Dr. Donald B. Frane, vice president; Dr. C. Gordon Watson, secretary; Dr. Julian V. Petit, treasurer.

* * *

Dedication ceremonies for the new **Renville County Hospital** at Olivia were held on January 21. Principal speaker at the dedication of the forty-bed hospital was Dr. John S. Lundy, head of the section on anesthesiology at the Mayo Clinic, Rochester. Following the ceremonies, conducted tours of the hospital were available to the public.

A tentative medical staff for the hospital was organized at a meeting in Olivia on February 19. Elected as tentative staff officers were Dr. J. A. Cosgriff, Sr., Olivia, chief-of-staff; Dr. C. A. Anderson, Hector, vice chief-of-staff, and Dr. H. P. Hindereker, Bird Island, secretary.

* * *

It was announced on January 4 that the Sisters of St. Francis had decided to proceed with construction of the new **St. Francis Hospital** in Shakopee without waiting for federal grants of funds. The hospital will be financed from pledges amounting to more than $200,000, obtained in a campaign last summer, plus a private loan negotiated by the Sisters. The loan will raise the fund available to $450,000. It was expected that actual construction work on the hospital would begin late in the spring.

* * *

The new superintendent of the **Schmidt Memorial Hospital** in Westbrook is Mrs. Kenneth Clarke, formerly superintendent of the Windom Hospital. She began her new duties on March 6.

* * *

The first patients were admitted to the new **Mount Sinai Hospital** in Minneapolis on February 19. At the start of operation of the 200-bed, four-million-dollar institution, only surgical, medical and pediatric cases were accepted. It was planned that the

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hospital service and staff would gradually be enlarged as more patients were admitted. Director of the hospital is Dr. Benjamin W. Mandelstam.

* * *

The University of Minnesota Hospitals have the "highest of any known" five-year survival rate for gastric cancer patients, according to a statistical study released on March 6 by three United States Public Health doctors who are medical fellows in surgery at the University.

In the study it was reported that 12.2 per cent of 404 gastric cancer patients who entered the University Hospitals between 1940 and 1945 have survived five years or more.

The report also pointed out that mortality rates in operations removing part of the stomach for gastric cancer have decreased from 41 per cent in 1946 to 11.4 per cent in 1949, with a low of 3.7 per cent in 1948.

BLUE CROSS AND BLUE SHIELD NEWS

Minnesota Medical Service, Inc., on January 1, 1951, revised the code numbers in the "Schedule of Payments" to doctors according to the Blue Cross-Blue Shield Actuarial and Statistical Manual. This change actually represents no deviation in fees paid or services allowed under the former Minnesota Blue Shield Schedule of Payments, but does change from the three-digit code number to a four-digit diagnosis code conforming with the International Morbidity Code. The revised "Schedule of Payments" will be distributed to the medical profession of Minnesota about May 1, 1951. The purpose of this uniform coding is to give Blue Shield plans, on a nationwide basis, accurate statistical data.

Last month this column discussed briefly some aspects of the delay in payment of Blue Shield claims. It may be helpful to the medical profession to outline here the factors which govern the rejection of Blue Shield claims.

Consistently over a period of six months the leading reason for rejection has been presentation of claims for patients who do not hold a Blue Shield contract. Another leading factor is the rejection of claims on which the required ten-month waiting period had not been completed. The third leading reason for disallowance involves cases in which the type of service or care rendered is not within the provisions of the contract.

The patient usually considers his attending physician's opinion as final on questionable cases. Much confusion and ill-will could be eliminated, as well as much time saved in both the physician's and the Blue Shield office, if the following information could be passed on to the patient directly from the doctor's office:

If the patient holds no Blue Shield contract, there is no advantage in filing a Blue Shield claim.

If the Blue Shield contract has not been in effect for ten consecutive months, no allowance can be provided for (1) obstetrical care, (2) tonsillectomies and adenoidectomies performed on minor dependents, and (3) for the treatment of conditions known to exist at the time the

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Blue Shield application is received in the Blue Shield office. To give questionable cases of foreknown conditions every possible consideration, medical history and data is requested from both the subscriber or patient and also from the attending physician, after which cases are given careful and thorough study.

If the services are for the treatment of a medical condition in the home or office, for consultation services either in the hospital or office, or for dual service, no allowance can be made.

This phase of professional-public relations can most effectively be carried out through the physician's office since therein lies the crux of the liaison between Blue Shield and the Blue Shield contract holder.

Total enrollment in Blue Shield as of January 31, 1951, was 419,761 participant subscribers, an increase of 135,874 over the same date of 1950.

There were 3,479 claims paid for January, totaling $123,869.35. Of these claims 514 were for services given in January, 1,579 for services in December and 710 for November, the balance dating from June, 1949, through October, 1950. The total payments of January claims represent 42.6 per cent of cash earned income compared with 55.4 per cent of cash earned income for January, 1950.

Please note that Cedric Adams, news commentator, will make spot announcements regarding our Blue Cross-Blue Shield non-group campaign, beginning April 2, at 6:45 p.m. on Mondays, 7:30 p.m. on Tuesdays, 6:30 p.m. on Wednesdays, 6:00 p.m. on Thursdays, 6:15 p.m. on Fridays, and 7:30 p.m. on Saturdays.

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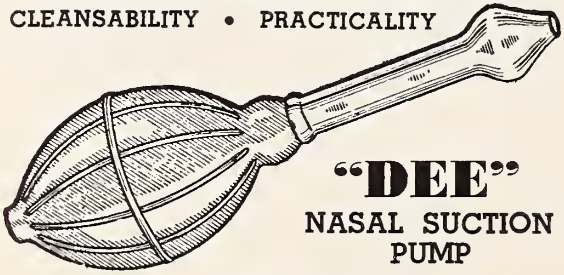

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BOOK REVIEWS

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Books Received for Review

THE USE OF PEDICLE FLAPS OF SKIN IN PLASTIC SURGERY OF THE HEAD AND NECK. Gordon B. New, M.D., F.A.C.S., Professor of Plastic Surgery, and John B. Erich, M.D., F.A.C.S., Associate Professor of Plastic Surgery. Both of Graduate School, University of Minnesota, Minneapolis, and Section on Laryngology, Oral and Plastic Surgery, Mayo Clinic, Rochester, Minnesota. 104 pages. Illus. Price $3.00, flexible binding. Springfield, Illinois: Charles C. Thomas, 1950.

UNITED STATES CIVIL DEFENSE. Health Services and Special Weapons Defense. Federal Civil Defense Administration. 260 pages. Illus. Price 60c. Washington, D. C.: United States Government Printing Office, 1950.

PARACELSUS—Magic Into Science. Henry M. Pachter. 360 pages. Illus. Price $4.00, cloth. New York: Henry Schuman, Inc., 1951.

PAUL EHRLICH. Martha Marquardt. With an introduction by Sir Henry Dale. 255 pages. Illus. Price $3.50, cloth. New York: Henry Schuman, Inc., 1951.

PHYSICIANS' AND NURSES' CONCISE MEDICAL ENCYCLOPEDIA. William H. Kupper, M.D. 450 pages. Illus. Price $7.50, cloth. Los Angeles, California: Biblion Press, 1950.

In the preface of this encyclopedia, the author states that it is "an attempt to bridge the gap between medical dictionaries which say too little about too much, and the medical tomes which say too much about too much." That is precisely what the book is.

Brief descriptions are given of diseases and drugs, anatomic structures and physiologic processes, histologic findings and pathologic conditions. The book contains a tremendous amount of information on numerous and widely varied subjects. It does not go into technical detail, yet gives far more information on each subject than is found in the standard medical dictionary.

The illustrations, which are scattered throughout the book, are poorly reproduced and of little value. The book, however, is easily read and is a useful compilation of facts for physicians and nurses.

—J.H.L.

THE PREPARATION OF PHOTOGRAPHIC PRINTS FOR MEDICAL PUBLICATION. Stanley J. McComb, F.B.P.A., Section on Photography, Mayo Clinic, Rochester, Minnesota. 69 pages. Illus. Price $2.00, flexible binding. Springfield, Illinois: Charles C. Thomas, 1950.

In this brief monograph the author offers suggestions for the correction and improvement of many of the defects often found in published medical illustrations.

First he describes the factors to be considered in taking medical photographs—sharpness of focus, scale-size and position, background, lighting, emphasis, and types of films. In the last one-third of the volume he discusses the making of prints, improving print quality, and trimming and grouping prints for publication.

The author's suggestions are emphasized by good illustrations showing the right and wrong approaches to each problem.

Though not intended to be a comprehensive textbook on medical photography, this monograph should be of value to all persons who do medical writing that is to be illustrated with photographic reproductions. The advice of the author, if followed, should greatly reduce the number of poorly planned and poorly executed photographs that are submitted with papers to medical journals.

—J.H.L.

RENAL DISEASES. By E. T. Bell, M.D., Professor of Pathology, University of Minnesota, Minneapolis. Second edition. 448 pages. 123 illustrations and 4 plates in color; 71 tables and charts. Price, $8.00. Philadelphia: Lea & Febiger, 1950.

The author, in his first edition, presented a concise correlation of the anatomy, the physiology and the pathology of the kidney, with the terminology of clinical medicine. By his analysis of his findings, he succeeded in clarifying many controversial points.

His second edition has incorporated the findings of an additional 18,000 autopsies. He has enlarged several sections to include the more recent advances and concepts.

The orderly style of presentation, the clear self-explanatory tables and the numerous excellent illustrations combine to make this monograph the outstanding work on the kidney.

C.K.W.

THE MASK OF SANITY: Hervey Cleckley, M.D., Professor of Psychiatry and Neurology, University of Georgia School of Medicine, Augusta, Georgia. 2d ed. 569 pages. Price $6.50. St. Louis: C. V. Mosby Co., 1950.

This second edition of Cleckley's well-known book on "psychopathic personality" constitutes an extensive revision and extension of the original work. As before, the book to a considerable degree consists of case histories, which unfortunately are somewhat popularized and seem designed to shock and fascinate more than to elucidate. Particularly lacking in this regard is material

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which would allow one to understand the early psychological factors involved in these cases. The same superficiality of investigation into possible psychodynamics is seen in the author's description of pathogenesis.

Criticisms cannot be made about the thorough coverage of the social implications of this condition, the descriptions of psychopathic variants, and the well thought-out ideas as to treatment and handling.

The book is easy and interesting to read and uses language with care. Its proper place in the literature is certainly not that of a book for popular consumption because of its sensationalist nature, but it is a valuable book for the mature physician and psychiatrist.

Medical Economics

(Continued from Page 356)

community has the responsibility in seeing that a workshop and tools are provided to bring in a first-class doctor to practice the skills he has learned. "Health, as well as education, is a local responsibility," Dr. Murphy said, adding that people should be prepared to put up adequate funds for rural health needs.

Dr. Murphy explained, that in terms of health service, there are three major factors:

1. The quantity and distribution of medical personnel and facilities;
2. The quality of that medical care;
3. The economics of medical service—ability of the population to purchase the medical service.

He said that when one considers the development of any kind of progress in health, all three factors play a role in the problems that presently exist, and those problems are integrated and interrelated to a great extent.

Dr. Murphy warned rural communities that they must remember that they are in competition with urban communities for scarce medical personnel, and that the young physician doesn't like to become medically isolated—"the community must be the magnet for young doctors."

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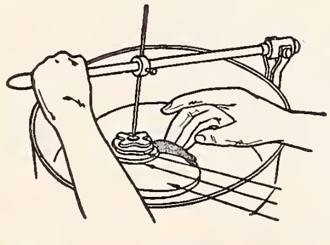

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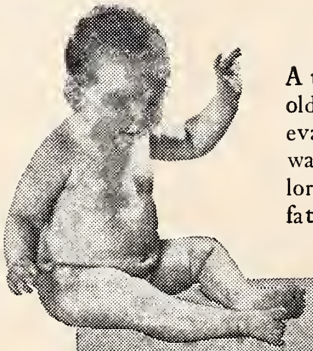

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Minnesota Medicine

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

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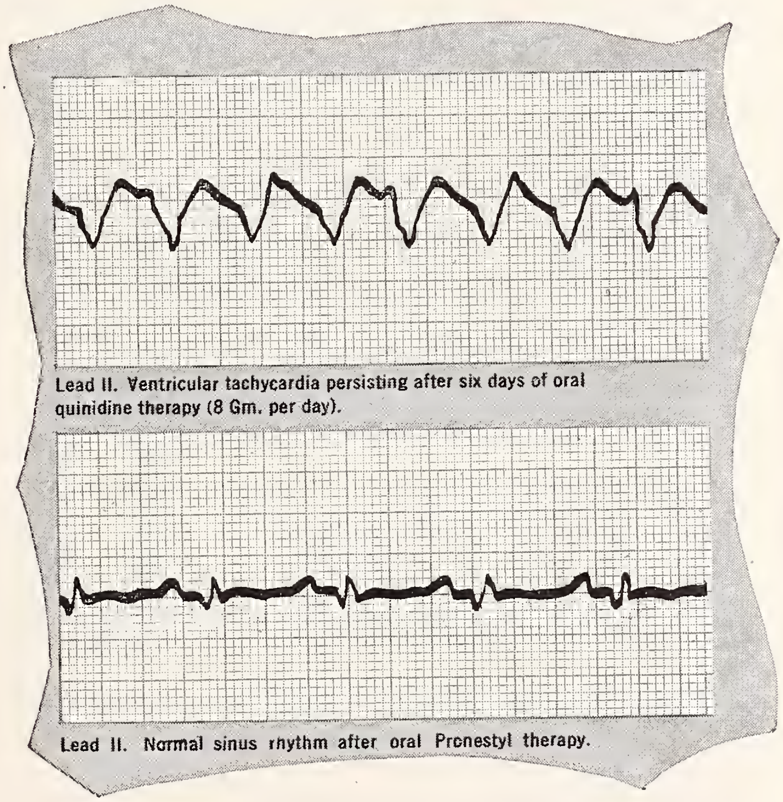

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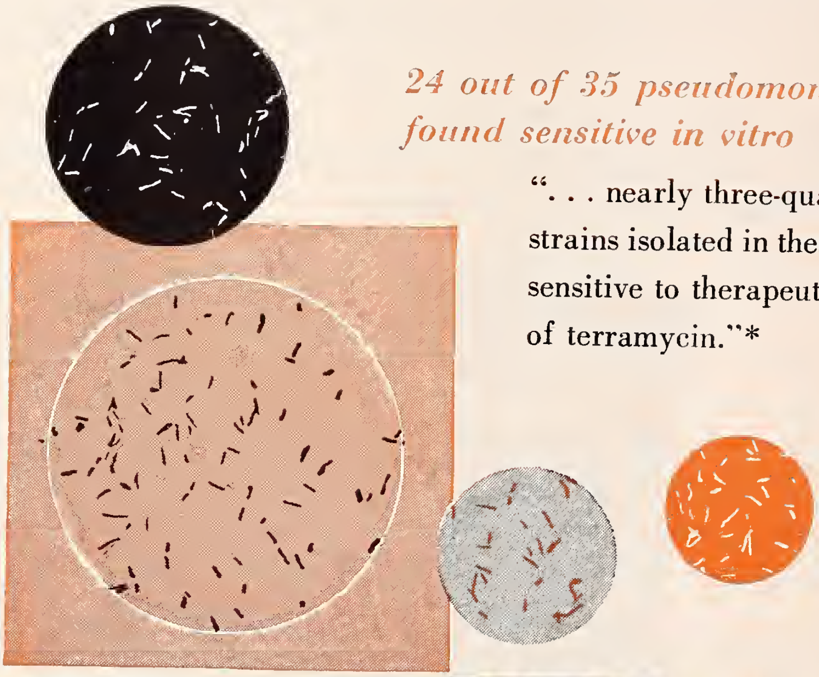

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*Linsell, W. D., and Fletcher, A. P.: British M. J. 2:1190 (Nov. 25) 1950.

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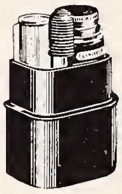

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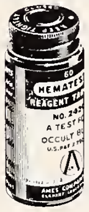

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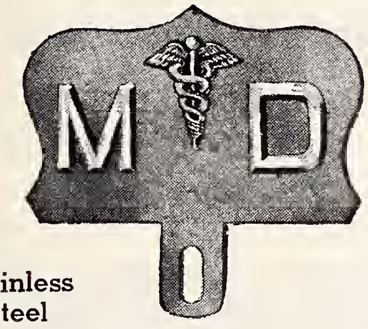

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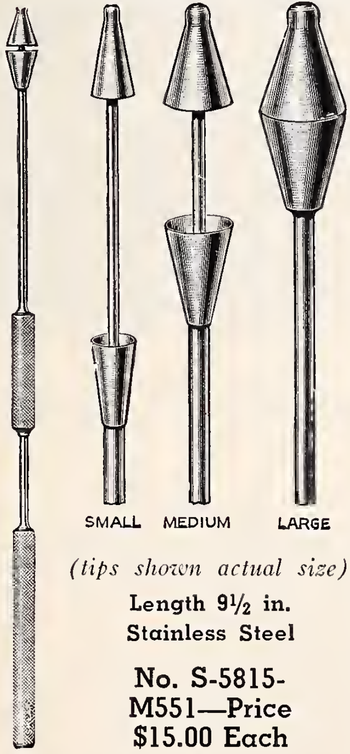

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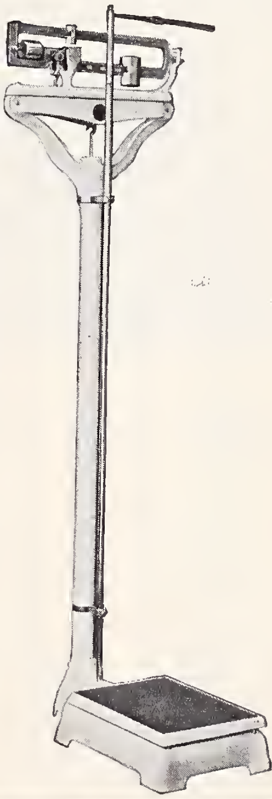

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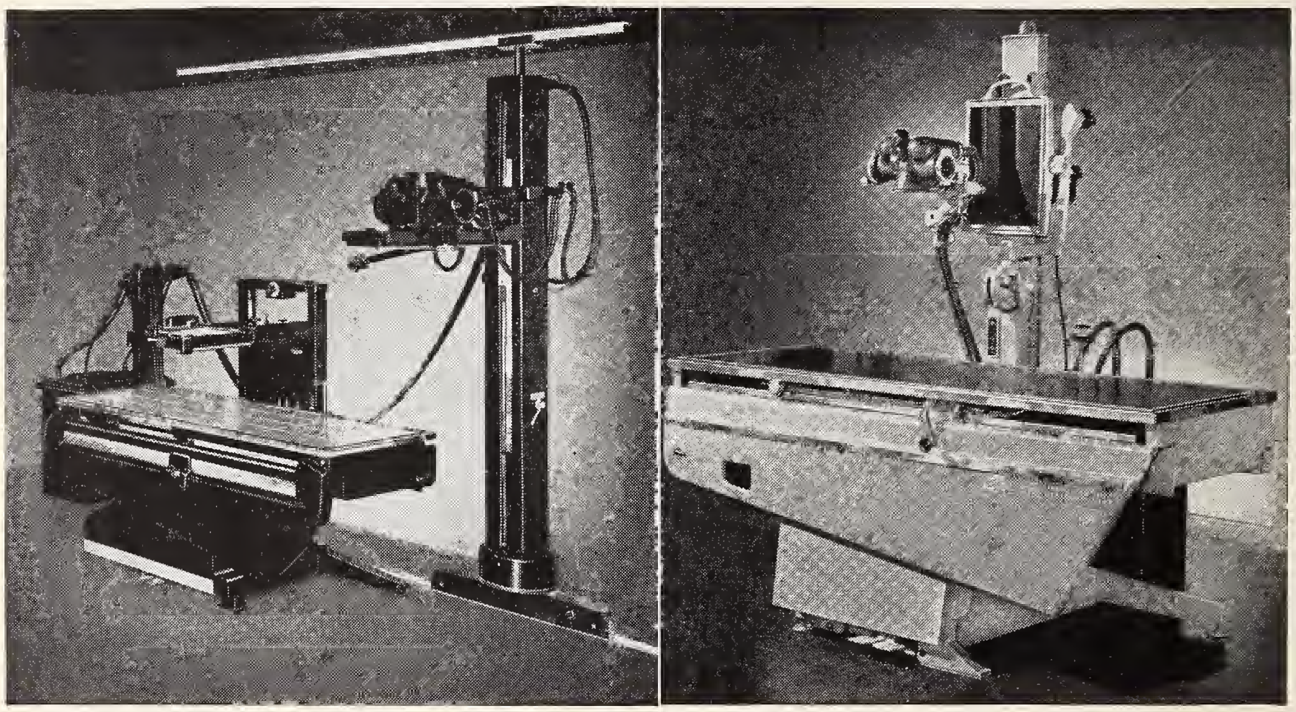

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(1) Mann, G. V., and Stare, F. J.: Nutritional Needs in Illness and Disease, J.A.M.A. *142*:409 (Feb. 11) 1950.

(2) Stieglitz, E. J.: Hypertensive Arterial Disease and Hypotension, Chapter 30, Geriatric Medicine, The Care of the Aging and the Aged, 2nd ed., Philadelphia, W. B. Saunders Company, 1949.

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References:
1. Chideckel, M.: M. Rec., 158:736, 1945. **2.** Gordon, E. S.: Nutrition and Vitamin Therapy in General Practice, Year Book Publishers, Chicago, 1947. **3.** Krehl, W. A. and Cowgill, G. R.: Food Research, 15:179, 1950. **4.** Moore, E. L. et al.: J. Home Econ., 37:290, 1945. **5.** Rafsky, H. A. and Newman, B.: Am. J. M. Sc., 201:749, 1941. **6.** Rafsky, H. A. and Newman, B.: Geriatrics, 2:101, 1947. **7.** Roy, W. R. and Russell, H. E.: Food Industries, 20:1764, 1948. **8.** Sadow, S. E.: M. Woman's J., 50:98, 1943. **9.** Stephenson, W. et al.: Brit. M. J., 2:839, 1941. **10.** Stieglitz, E. J.: J.A.M.A., 142:1070, 1950. **11.** Thewlis, M. W.: The Care of the Aged, 5th ed., Mosby, 1946.

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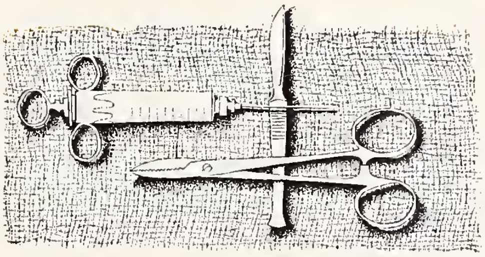

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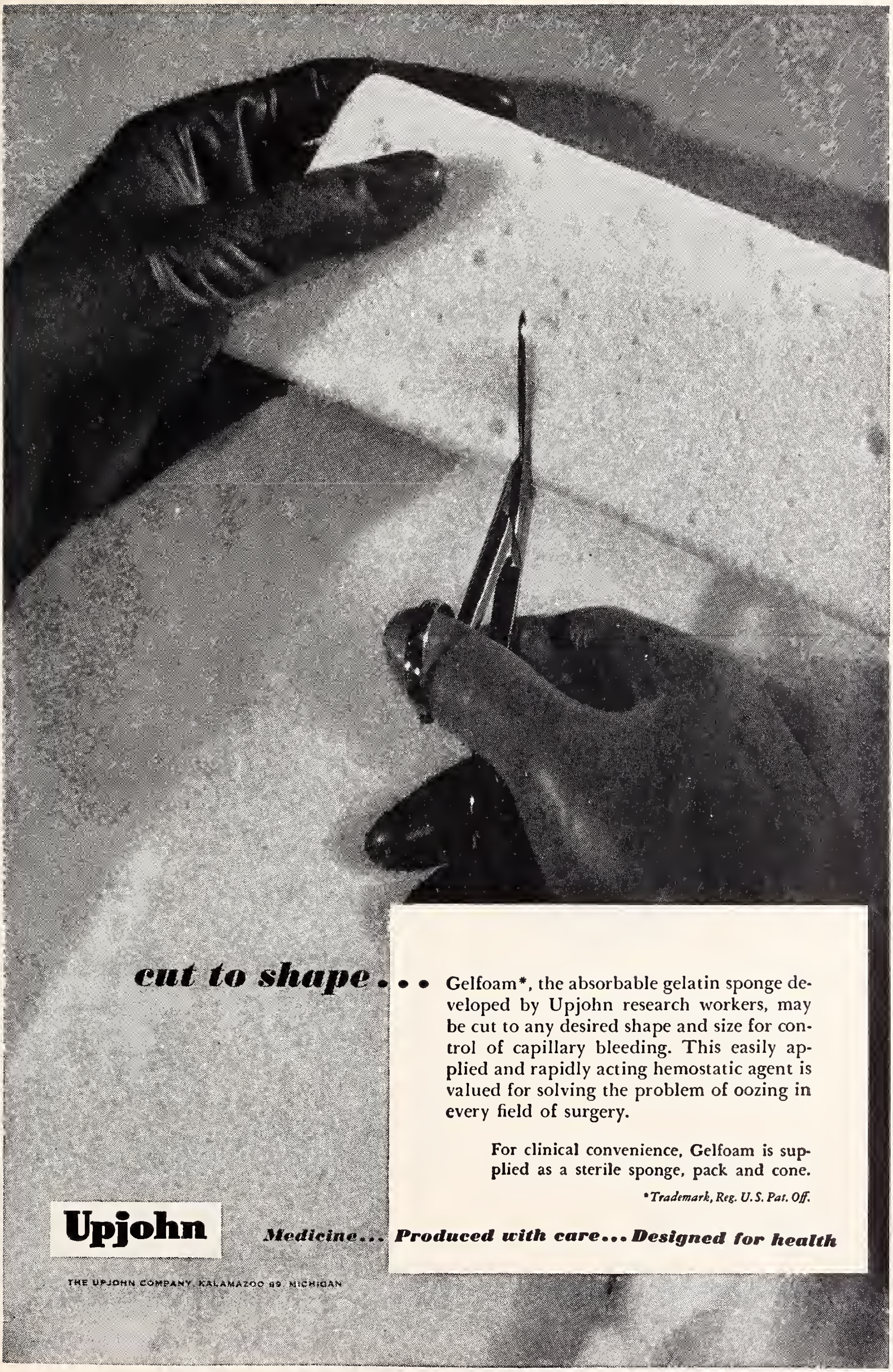

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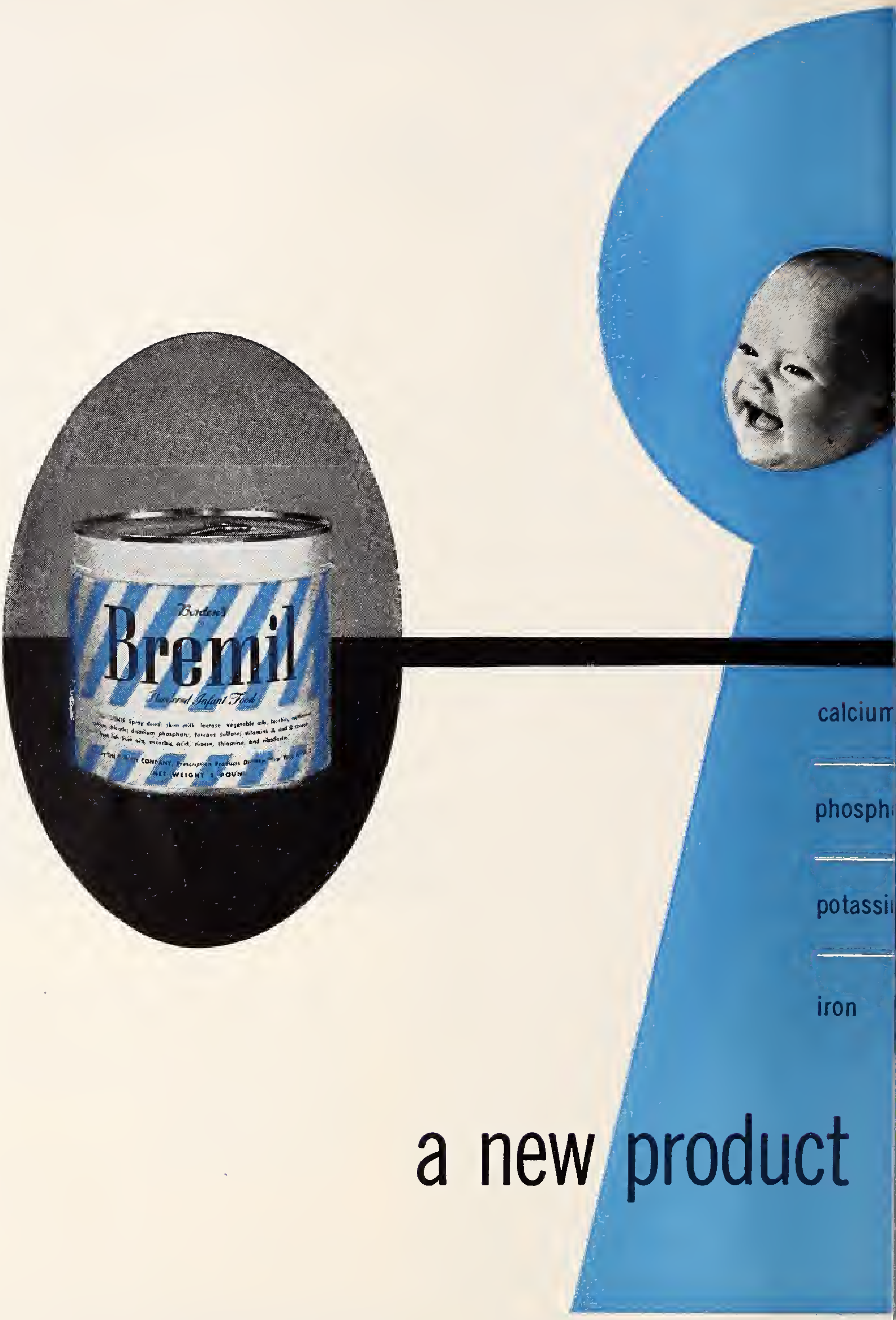
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1. Gardner, L. I., Butler, A. M., et al.: *Pediatrics* 5:228, 1950.
2. Nesbit, H. T.: *Texas State J. M.* 38:551, 1943.
3. Dodd, K., and Rapoport, S.: *Am. J. Dis. Children* 78:537, 1949.
4. Recommended Daily Dietary Allowances, Revised 1948, Food and Nutrition Board, National Research Council.

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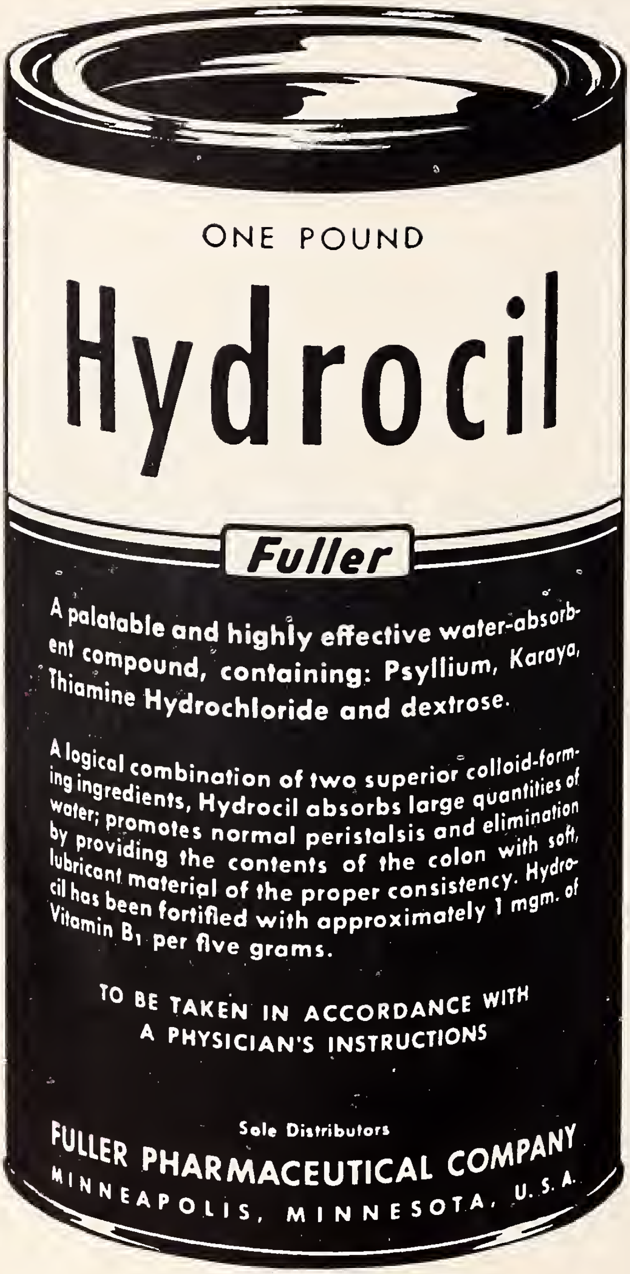
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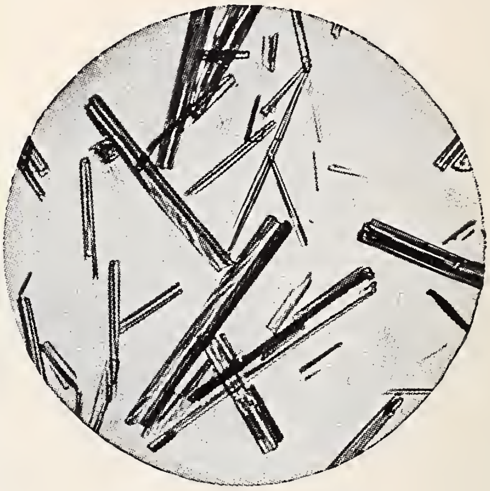

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A Tribute to O. H. Wangensteen

THIS YEAR marks the twentieth anniversary of the first work in intestinal obstruction by Dr. O. H. Wangensteen, Department of Surgery, University of Minnesota Medical School. As the years have gone by, our knowledge of the value and limitations of siphonage drainage in ileus have been crystalized. There is no question that the simple expedient of decompressing the intestinal tract has made many operations upon the intestinal tract feasible or at least has lowered their mortality. Dr. Fred Coller of the Department of Surgery, University of Michigan Medical School, has stated that Doctor Wangensteen's work on decompressing the intestinal tract has been the greatest contribution to surgery in two decades.

Doctor Wangensteen's first interest in the subject of intestinal obstruction was not encouraged by some of the older members of the faculty who told him that "everything that could be known was known about intestinal obstruction." Also his first paper was rejected by the editor of the Proceedings of the Society for Experimental Biology and Medicine as being of "little scientific interest." As a result of this research, however, one never sees now-a-days an ileostomy or colostomy performed for a paralytic ileus, or hears that cases of strangulation obstruction should be treated conservatively. It is true that patients with complete mechanical obstruction of the large or small bowel still have to be operated upon to relieve the obstruction, but in the partial mechanical obstruction due to adhesions, how many lives have been saved and how many operations have been avoided by decompressing the intestinal tract with an indwelling intestinal tube?

Recognition and honor have come to Doctor Wangensteen in the past few years but he wears his mantle of greatness with modesty. More than his interest in research has been his interest in the training of future surgeons. Few teachers have had the respect and affection of their surgical fellows tendered Doctor Wangensteen. It was characteristic of him that the check presented to him at his testimonial dinner by the St. Paul Surgical Society in January, 1951, was given to the Travel Fund for his surgical fellows.

It is a happy occasion that this number of MINNESOTA MEDICINE is dedicated to Doctor Wangensteen. Few surgeons have received such international renown or set the pattern for surgical thoughts among their colleagues as he has. We in Minnesota are proud of the accomplishments of this native son.

FLUID AND ELECTROLYTE BALANCE IN INTESTINAL OBSTRUCTION

FREDERICK A. COLLER, M.D., and ROBERT E. L. BERRY, M.D.
Ann Arbor, Michigan

INTESTINAL obstruction has always been a dread event, one of great anguish and danger to the patient and one of great anxiety to the surgeon because of difficulties of diagnosis and the complexities of treatment. Both patient and physician owe much to a comprehensive study of this problem initiated by Dr. Owen Wangensteen more than twenty years ago. It has been carried on by him and his associates since that time. They have gone a long way in clarifying the many phases of the disease through their scientific and clinical studies and they have given direction to other investigators and important aid to the practicing physician.

The most widely acclaimed of Doctor Wangensteen's many therapeutic suggestions was a method of decompression, and the phrase "Wangensteen suction" has become fixed in surgical language. However, his studies on the nutritional and acute chemical abnormalities produced by intestinal obstruction, while perhaps not as spectacular, have been fully as important. In tribute to this phase of his research we present this brief review of the chemical imbalances associated with obstruction of the bowel.

The composition of the body fluids is now well established, but the factors that influence their rate of motion are as yet practically unknown.

The reconstitution and maintenance of the water, salt, protein and red blood cell needs of the patient with intestinal obstruction still present many challenging problems. By necessity, therefore, any discussion of fluid balance problems peculiar to this condition must be approached with awareness of our lack of knowledge of many aspects of body fluid dynamics.

Our concepts of treatment of dehydration produced by intestinal obstruction have been slowly evolved from the great amount of research, both experimental and clinical, done by many investigators. That the abnormal loss of body fluids could produce serious and even lethal sequellae had been observed by O'Shaughnessy (1831) over one hundred and twenty years ago.[11] His researches in which he observed hemoconcentration, diminution of blood sodium, chloride and bicarbonate as well as increase in blood urea in patients with cholera were remarkable original investigation for that time. Based upon the response of his patients he advised administration of "the normal salts" of the blood either intravenously or by proctoclysis. Despite confirmation of his work by other workers, full acceptance of his observations was not achieved until much later because of inertia and ignorance.

Prior to 1912 the accepted theories as to the cause of death in intestinal obstruction were: (1) the reflex nervous action on the cardiovascular center, (2) the bacterial invasion outward from the intestinal lumen either into the peritoneum or into the blood itself, and (3) the absorption of toxins from the intestine produced by bacteria, food decomposition and secretory activity of the glands of the intestine. The importance of dehydration as a lethal factor in obstruction was first suggested by the experiments of Hartwell and Hoguet (1912) who observed that the lives of dogs with high intestinal obstruction could be significantly prolonged by the subcutaneous injection of normal saline solution.[7] These investigators felt, however, that the loss of water due to vomiting was the important element in the development of symptoms and that intoxication resulted from tissue disintegration resulting from such water loss.

Observations upon the profound disturbances in the electrolyte pattern of the blood in experimental pyloric obstruction were first made by MacCallum and his associates (1920).[9] These investigators found that such obstructions produced marked decrease in the blood chlorides and an accompanying increase in the alkali reserve. There was also an associated increased electrical excitability of the nerves that could produce violent convulsions. The beneficial effects of the administration of large amounts of sodium chloride were also observed but the mechanism by which such benefits were obtained remained obscure.

From the Department of Surgery, University of Michigan Medical School, Ann Arbor, Michigan.

Hayden and Orr (1924)[6] observed the same changes in blood electrolytes produced by obstructions of the small bowel as had been pointed out by MacCallum. In their interpretation, these workers assumed that the fall of blood chlorides was not due to abnormal loss through vomiting but to fixation in the tissues with a toxin from the obstructed bowel. This utilization of the chloride ion was assumed to be a protective mechanism on the part of the body and that the administration of large amounts of sodium chloride reduced this toxemia. The views of Hayden and Orr were strongly attacked by Foster and Hausler (1929) who concluded from their experiments that death in intestinal obstruction was due to dehydration and starvation and there was no evidence of toxemia.[3]

A sound basis to explain many of the laboratory and clinical phenomena observed in obstruction was first offered by Gamble and Ross (1925).[4] Their observations led them to believe that failure of physiological processes and death following experimental obstruction of the pylorus could reasonably be due to continued reduction of the volume of body fluids by continued loss of chloride and more importantly sodium and that the beneficial effects of sodium chloride administration were due to repair of the chemical structure of certain body fluids permitting recovery of a normal volume of body water. They also pointed out that the administration of water with or without glucose or the chloride ion alone (NH_4Cl) was not effective in preventing dehydration. After twenty-five years these observations remain as the basis for the restoration and maintenance of the extracellular fluid volume.

Gatch and his associates (1927) observed changes in blood electrolyte similar to those observed by Gamble, in small bowel obstructions.[5] They also attributed death in intestinal obstruction to dehydration, reduction of blood chlorides by vomiting and starvation. Their experiments demonstrated, however, that sodium chloride treatment was not effective in strangulated obstructions.

Following the researches of these pioneer investigators the great bulk of experimental and clinical data has provided a progressive betterment of our knowledge of the treatment of dehydration produced by intestinal obstruction and futhermore has suggested that almost all, if not all, of the deleterious systemic effects associated with intestinal obstruction are due to dehydration and bowel distention and that toxemia in simple obstruction probably does not exist. Strangulated obstructions and particularly those in which bowel perforation has occurred with general peritoneal contamination may produce toxemia, but the toxemia is due to peritonitis and not to the obstruction itself.[1]

The degree of depletion of body fluid and electrolyte, both extracellular and intracellular, depends upon the site of the obstruction, duration of the period of loss and whether perforation of the bowel with resultant peritonitis has taken place. As a general rule the higher the obstruction and more prolonged the period of distention and vomiting, the greater will be the loss. The clinical picture may vary, therefore, from the patient showing no signs of dehydration to the individual who is in severe shock or moribund from the loss of body fluids.

All attempts at replacement of the constituents of the extracellular and intracellular fluid compartments lost in intestinal obstruction must be geared to the history and the clinical picture presented by the patient. Too much emphasis cannot be placed upon the importance of using the clinical status of the patient as the primary guide in replacement therapy. Laboratory studies of the blood and urine may provide important confirming evidence as to the patient's status, but reliance upon them as an absolute guide is inaccurate and may be hazardous. Maximum accuracy is obtained by the careful correlation of all clinical and laboratory guides, with the clinical appearance of the patient being paramount in the estimation of his condition.

Electrolyte Replacement and Maintenance

Effective rules or formulae for the replacement of electrolyte cannot be offered because of the necessity of adjusting such administration to the clinical condition of the patient. The emphasis has been and still is upon the replacement of the chief extracellular ions sodium and chloride. The large losses of body fluid associated with severe and prolonged intestinal obstruction also produce depletion of the important intracellular ion potassium.

Dehydration observed in intestinal obstruction is of the mixed type containing components of both water and electrolyte dehydration. When

TABLE I. SYMPTOMS AND PHYSICAL SIGNS PRODUCED BY LOSS OF TWO TO SIX PER CENT OF BODY WEIGHT AS EXTRACELLULAR SALT WATER

Two to 4 Per Cent Loss of Body Weight as Extracellular Salt Water	Four to 6 per cent loss of Body weight as Extracellular Salt Water
Anorexia Apathy Weakness Reduced affective responses Nausea Vertigo Soft pulse Diminished peripheral venous filling Variable changes in blood pressure Loss of tissue turgor	Aggravation of all signs and symptoms found in 2-4 per cent body weight loss Retching Orthostatic hypotension Tachycardia Wrinkled tongue Marked loss of tissue turgor "Putty" like muscles Soft eyeballs Shock

manifest symptoms and signs of severe dehydration are present, between 4 and 6 per cent of body weight has been lost as water and electrolyte (Table I). This offers a clinically effective index as to the quantitative amount of repair fluid that may be necessary for repletion. In the absence of shock or hypotension, replacement should be started with a 0.6 per cent sodium chloride solution rather than 0.9 per cent, as it is felt that this solution is handled more physiologically by the body and provides immediate water for insensible loss through the skin and lungs as well as water to aid in the formation of urine. If hypotension and shock are present due to sodium chloride depletion, then the administration of a 1.5 to 2 per cent sodium chloride solution combined with blood transfusions is indicated until the blood pressure is brought to satisfactory levels. Repletion can then be continued with the 0.6 per cent solution.[10]

When adequate repletion has been obtained, maintenance of electrolyte balance is usually less difficult but just as important as repletion. Volume for volume replacement of the extrarenal loss of body fluids, excepting insensible loss, with lactated-Ringer's solution is a satisfactory working clinical guide.[1]

General improvement in the patient's clinical condition, diminution of signs of electrolyte dehydration, reappearance of adequate urine output containing satisfactory amounts of chloride, and the re-establishment of normal levels of blood electrolyte and pH—all present positive evidence as to the effectiveness of treatment.

Potassium, the chief intracellular electrolyte, is lost in significant amounts when large volumes of gastrointestinal secretions are aspirated or lost by vomiting or diarrhea. Furthermore, it has been observed that the administration of sodium chloride solutions used for repair can further increase potassium loss.[8] The importance of replacing this physiological important potassium has not been thoroughly appreciated until recent years, and considerable attention is now being given it in surgical literature. Experimentally, it has been demonstrated that the lives of dogs with pyloric obstruction can be significantly prolonged beyond that reasonably anticipated from the use of sodium chloride when potassium salts are added to repair solutions.[2] Potassium salts should be added to the repair solutions, after adequate urinary output has been obtained, to aid in the restoration of intracellular water and electrolyte. The oliguria associated with uncompensated large losses of body fluids may make the immediate administration of potassium salts hazardous because of the danger of heart block when serum potassium levels approach 10 to 12 milli-equivalents. Two to 6 grams of potassium, either as the chloride or a combination of the monobasic and dibasic phosphates, may be added to the repair solutions daily.

Water Repletion and Replacement

The status of water hydration is closely allied to the quantitative available electrolyte, as total body water is dependent upon total body salt. Additional water is necessary, however, to provide for the insensible loss through the skin and for the formation of sufficient urine. Water for this purpose should be given as 5 per cent glucose in distilled water as the administration of sodium salt solutions necessitates the "distillation" of water by the renal excretion of the excessive salt, a process that is often inefficient in the sick patient. Dependent upon the environmental and body temperatures, insensible loss ranges from 1000 to 2000 c.c. per day. During hot weather it may be much greater. Another 1000 c.c. of fluid or more is necessary to insure adequate formation of urine.[1]

It has been pointed out by Wangensteen[12] that careful weighing of patients preoperatively and postoperatively affords valuable information as regards too rapid depletion or accretion of total body water. Scales for this purpose are accurate to within 100 grams. In obstructed patients, however, whose hydration at the time of hospitalization may be far from normal, this method has diminishing value. When dealing with normal kidneys, a most accurate index of water needs may be obtained by the urinary specific gravity. If the specific gravity is less than 1.020, it is reasonable to assume that the kidneys are getting adequate water to perform efficiently. If the specific gravity is greater than 1.020, the kidney may not be obtaining enough water to work with, and further administration of fluids is indicated.

It is obvious that during a period of repletion and subsequent maintenance of a seriously dehydrated patient that several liters of electrolyte and glucose solutions, together with blood and/or plasma, must be administered. There are hazards of overhydration particularly in older patients and those with poor cardiac reserve. Symptoms of overhydration must be carefully watched for and the administration of fluids slowed or discontinued as may be necessary (Table II).

TABLE II. SYMPTOMS AND PHYSICAL SIGNS PRODUCED BY ABSOLUTE WATER AND/OR SALINE EXCESSES

Absolute Water Excess	Saline Excess
1. Due to extrarenal excretion of excess water:	Disorientation Anorexia
Salivation	Nausea
Lacrimation	Vomiting
Non-projectile vomiting	Hoarseness
Diarrhea	Heavy eye lids
Intracutaneous edema	Diminished urine flow in relation to intake
2. Due to increased intracranial pressure:	Subcutaneous edema Pulmonary congestion
Headache	Edema of parenchymal organs
Disorientation	Ascites
Muscle twitching	Hydrothorax
Bradycardia	
Vomiting	
Nausea	
Elevated blood pressure	
Anorexia	
Increased spinal fluid pressure	
Convulsions	
Coma	

Acid-Base Balance

Because of the disparity of the relative concentration of sodium and chloride in certain gastrointestinal secretions, as compared to blood plasma, their loss may produce an increase or decrease of blood pH depending upon which ion has the greatest loss. Most acid-base disequilibrium states in intestinal obstruction are of the metabolic type. It is therefore reasonable to assume that a fairly accurate estimate of the severity of "acidosis" or "alkalosis" may be obtained from determination of the CO_2 content of the blood. When present, severe compositional changes of this type should receive early and vigorous treatment. Alkalosis, as manifested by increased blood pH and carbon dioxide content, will respond, in the majority of cases, to Ringer's solution without added lactate, normal equilibrium being established as repletion is completed. Extremely severe alkalosis may require the administration of 0.9 per cent ammonium chloride solution, but these cases tend to be unusual. It should be remembered that potassium deficits may be associated with high refractory carbon dioxide content of the blood and that correction of the alkalosis is obtained only when potassium salts are administered.

Acidosis, manifested by low carbon dioxide content and lowered blood pH, may be treated by a one-sixth molar solution of sodium lactate provided that shock or liver damage is not present. The administration of sodium bicarbonate as a 1.3 per cent solution will be necessary to combat acidosis in patients in shock or who have severe liver damage, as sodium lactate is inefficiently utilized when these conditions are present.

Plasma and Red Blood Cell Administration

With strangulation, thrombosis or embolism of the blood vessels there will occur a loss of blood that is always serious and may decide the issue. In other forms of obstruction a better understanding of the acute serum protein deficits and red blood cell losses in intestinal obstruction has emphasized the necessity of their replacement during both the repletion and maintenance periods. In the presence of severe sodium salt depletion the total circulating protein diminishes at approximately the same rate as the volumes of plasma and the extravascular extracellular fluid do. Large losses of extracellular salt water are associated, therefore, with losses of plasma protein. The rapid reconstitution of extracellular fluid volume without replacement of this plasma protein loss is to invite loss of vital intravascular fluid into the interstitial spaces, with resultant edema, because of increased capillary hydrostatic pressure and decreased colloid osmotic pressure. At least 500 c.c. of blood, therefore, should be given with each 3000 c.c. of repair fluid when repleting large losses of body fluids.

Acute protein loss may be further augmented by loss into the edematous bowel wall and transudation into the intestinal lumen and peritoneal cavity. Repeated transfusions of blood and/or plasma may be necessary to replete such acute protein deficits. If peritonitis has followed bowel perforation, there are even greater losses of blood proteins, and generous transfusions of both plasma and blood will be necessary to maintain the plasma volume and the circulating red blood cell mass.

Summary

1. The important lethal factor in simple intestinal obstructions is dehydration and bowel distention. Toxemia probably does not exist.

2. Knowledge regarding fluid and electrolyte balance in intestinal obstruction has been importantly advanced, but many aspects remain poorly understood because of inadequate understanding of the dynamics of fluids between the various body fluid compartments.

3. The repletion and maintenance of the various extracellular and intracellular constituents lost in intestinal obstruction have been discussed.

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A PROPOSED STUDY OF PREMATURITY AND CONGENITAL MALFORMATIONS

Premature birth has appeared as one of the ten leading causes of death in Minnesota for a number of years. During 1949 congenital malformations entered the picture as the tenth leading cause of death in the State. The appearance of congenital malformations in the leading causes of death apparently resulted from the rapid decline in the number of deaths attributed to tuberculosis, formerly in tenth place and the increase in the number of live births in recent years. There has been no appreciable increase in the congenital malformation death rate during the past two decades. The rate has varied between 4.6 and 6.5 per 1,000 live births since 1930. Slightly more than 80 per cent of all deaths due to congenital malformations occur within the first year of life. Over 93 per cent of the deaths attributed to premature birth occur within the first week of life.

Because of the importance of prematurity and congenital malformations in the infant death picture, the Division of Vital Statistics, under direction of the Division of Maternal and Child Health, is conducting studies relating to these two causes of death. The new birth certificate form, adopted in Minnesota at the beginning of 1950, affords basic statistical information for this study. Weight of the child, weeks of gestation and the presence of congenital malformations are the basic items being studied. Information regarding the existence of congenital malformations for all births has been made available for the first time during 1950. All information contained in the medical portion of the birth certificate is confidential in nature. It is used for statistical purposes only. When certified copies of the birth record are issued, the medical portion of the record is not filmed. It is vitally important that physicians and others completing the birth records understand this fact clearly.

Information being tabulated at the present time according to weight include:

1. Color of the parents
2. Single or multiple births
3. Attendant's specifications regarding full terms or prematurity
4. Birth order of the child
5. Presence or absence of congenital malformations

The birth data are tabulated in weight intervals of one pound except for the five-pound interval which is divided between five pounds, eight ounces and under—five pounds, nine ounces and over. Infants weighing ten pounds or more are tabulated as a single interval. Special studies will also be made regarding the survival rate of infants reported to have congenital malformations.

The aim of the present study is to obtain as accurate a picture as possible of the premature and congenital malformations problem existing in Minnesota. The study will be extended for a number of years. Its value is dependent largely upon the care and accuracy with which the birth records are completed by the attendant. Special appeals are being made to physicians and hospital groups to give careful attention to the statistical section of the birth record.

Minnesota Department of Health
Division of Vital Statistics
J. W. Brower, *Acting Director*

PRIMARY INTESTINAL ANASTOMOSIS

I. S. RAVDIN, M.D., and WILLIAM DeMUTH, JR., M.D.
Philadelphia, Pennsylvania

FEW surgeons have contributed as much to our knowledge of the pathologic physiology of gastrointestinal disease as has Owen H. Wangensteen. To him, and to those who have worked with him, American medicine is indebted for innumerable contributions which have extended our knowledge of a wide variety of gastrointestinal disorders. Among the most important of these contributions was the work from his clinic on the importance of relieving gastric and intestinal distention by intubation without recourse to operation. It was not Doctor Wangensteen's fault that many surgeons failed to heed his admonitions regarding the necessity of early operation when signs of gangrene were present, or when intubation failed to provide significant relief from serious symptoms. These faults can be ascribed to the frailities of man, and our profession is not free of them. Intestinal intubation, as introduced by him and extended by T. Grier Miller and William Osler Abbott, has reduced the morbidity and mortality of many diseases and procedures which the surgeon daily encounters in his work.

Our initial experience with long-tube intubation in the management of small and large bowel lesions was reported by Abbott and the senior author[5] just a decade ago. At that time twenty-six primary anastomoses of small and large bowel had been done without the use of surgical proximal decompression procedures. A death from coronary occlusion represented the only mortality in this group.

Our enthusiasm for this method has not lessened since that time. The results during the past decade lead us to believe that resection and primary anastomosis has proven to be a safe operation in many patients requiring excision of segments of the small or large bowel. Prior to 1946, however, primary anastomoses following resections, especially for large bowel lesions distal to the hepatic flexure, were done relatively infrequently in this clinic.

During the past five years there has been a steady and marked increase in the number of primary anastomoses following bowel resection, regardless of location of the lesion. Ileocolostomy, without exteriorization procedures, in by-passing unoperable large bowel cancers, has likewise become much more common. Strangulations secondary to volvulus, mesenteric thrombosis and obstructed hernia, certain instances of intussusception, obstruction due to adhesions, isolated inflammatory processes, malignancies, and traumatic injury, when found in the small bowel, are all lesions which, we feel, are in general best treated by resection and primary anastomosis. The marked electrolyte disturbances secondary to large losses of intestinal fluids are thereby obviated, and the time required for secondary anastomosis is saved.

This approach has resulted in a lower morbidity and a need for fewer hospital days for patient care. In most instances when simple obstructions, partial or complete, are present which require a resection, we now find it possible to do a primary anastomosis following resection of the involved bowel. Constant suction internal drainage makes this not only feasible but safe. An understanding of the pathologic physiology of bowel distention leads to a rational program of treatment. Wangensteen,[8] in his excellent monograph on "Intestinal Obstructions," discusses the ramifications of the effects of distention and states ". . . the mechanistic conception of the ill consequences of obstruction provides better interpretation and a more acceptable explanation of the phenomena and end effects which attend bowel obstruction than does the toxic absorption theory." Whether one agrees with this statement or not, distention is all too frequently the motivating factor initiating a train of events which results in death. The control of distention is the clue to successful preparation of the bowel for primary anastomosis. The integrity of the anastomosis depends upon the condition of the wall of the obstructed bowel which has or has not been well prepared preoperatively. The dilated, grossly dirty bowel hav-

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From the Harrison Department of Surgical Research, School of Medicine, University of Pennsylvania and the Surgical Clinic of the Hospital of the University of Pennsylvania, Philadelphia, Pennsylvania.

ing a poor blood supply provides poor material for a successful anastomosis.

If primary anastomosis is to be safe without proximal external drainage, marked degrees of distention must be avoided. By using the long intestinal tube to prepare the bowel preoperatively, and to protect the suture line postoperatively, we believe that staged operations are no longer necessary in many cases which heretofore have been so treated. Cecostomy, appendicostomy, colostomy, and enterostomy are being used less and less by us, either before or at the time of operation. Even in patients with a high-grade partial large bowel obstruction we are doing more primary resections and anastomoses than proximal colostomies, This trend is reflected in the results of the survey made by Rankin[4] in which only 30 per cent of a considerable number of surgeons questioned employed appendicostomy, cecostomy, or colostomy regularly either before or at the time of resection of the distal colon or rectum.

Preoperative Preparation of the Obstructed Patient

In suspected strangulated obstructions, shock, if present, is immediately combated by the use of blood and plasma while arrangements for early operation are being completed. The administration of sedatives must be attended by considerable caution. The marked colicky pain often associated with high-grade obstruction may lead one to use opiates excessively. Pain stops when decompression is adequate, and its presence casts suspicion on the fuctioning of the tube. If shock is present, delayed absorption of the drug may give late marked depression of the central nervous system and of respiration. The exquisite tenderness so frequently present in strangulation obstruction may be so lessened as to result in an unfavorable delay in operation in the belief that a simple obstruction is present. Once the general condition of the patient is rendered sufficiently good to stand a surgical procedure, the operation should not be delayed. If such response is not prompt following the infusion of blood or plasma, one should not further delay operation, since not infrequently release of the obstruction is the only thing which will result in improving the patient's condition.

A scout film of the abdomen is made as soon after admission as possible to determine the approximate site of obstruction. Localization of the lesion will in the majority of instances be made by correlation of roentgenographic findings, history and physical examination.

Intubation.—The Miller-Abbott tube is then passed into the stomach and the stomach emptied by aspiration. By using 3.0 c.c. of mercury in the balloon of the tube and by placing the patient in the right lateral decubitus position, we have been successful in getting the tube beyond the pylorus in a high proportion of obstructed patients. Fluoroscopy is a great help. Those with high-grade small bowel obstruction are not infrequently difficult to intubate. After the tube enters the duodenum, constant suction is applied, and the balloon is inflated to effect passage of the tube toward the point of obstruction. When the obstruction is reached, the balloon is deflated.

The relief of distention preoperatively serves a twofold purpose. The general condition of the patient is frequently dramatically improved, and the local improvement in the bowel wall makes the possibility of a definitive procedure much more likely at the time of operation. Van Zwalenburg's[7] conclusions concerning the vascularity of distended bowel are still valid, and if primary anastomoses shall heal without leaking, the blood supply to the involved segments of bowel must not be compromised. The danger of leakage at the relatively weak suture line with increased intraluminal pressure is a real one.

If, as occasionally occurs, the long tube does not function, we do not hesitate to replace it by a Levine tube to facilitate decompression (Wangensteen and Paine.[9]) Our preference for long-tube intubation was set forth[5] ten years ago. This method in our hands has been most satisfactory.

A competent ileocecal valve effects a closed loop obstruction if the obstruction is in the large bowel. The tube must enter the cecum if distention under these circumstances is to be relieved. The ileocecal valve often will not admit the tube, and operation is depended upon for relief of distention.

Cleansing of the Bowel.—D. F. Jones[3] stressed the fact that an empty clean bowel was one of the best safeguards against postoperative peritoneal infection. If the local condition of the bowel permits one to delay operation for several days, we feel that mechanical cleansing and the reduction in the number of bacteria residing in the bowel can and should be accomplished. The program we presently employ requires five days immediately before operation.

In cases of anticipated large bowel resection the patient is given an enema of tap water daily. Mild purgations in the form of milk of magnesia or magnesium sulfate solution are also used daily. A low residue diet is given through the day prior to operation. Sulfasuxidine, 0.25 gram per kilogram of body weight, is given by mouth daily in four divided doses. Two days prior to operation 0.5 gram of streptomycin is administered by mouth twice daily. The Miller-Abbott tube is passed forty-eight hours before operation, and the sulfasuxidine and streptomycin are administered by mouth with the Miller-Abbott tube in place. Studies[6] of the bacterial flora of the large bowel carried out in this hospital before and after the administration of sulfasuxidine and streptomycin have been convincing, and we routinely employ these agents. We do not feel that the use of these drugs should supersede in importance the gross cleansing of the bowel.

Blood transfusions are given preoperatively as blood volume, hemoglobin, and serum protein determinations indicate.

Technique

Only general principles of operation will be discussed.

When dealing with malignancies of the large bowel, we believe that the wide mesenteric resection with wide resection of the involved bowel is mandatory. Gilchrist and David's[2] monumental study leaves little doubt concerning this.

Secondly, we prefer the open technique of intestinal anastomosis. We feel that the accuracy of apposition of the bowel ends is better with open anastomoses than with closed techniques and less bowel is turned in. A clean bowel affords little danger of peritonitis due to contamination at the time of anastomosis. The gross contamination incident to a leaking suture line is a far greater hazard.

In general, end-to-side anastomosis is used in the ileocolostomy following resection of the right colon. End-to-end anastomosis is routinely used following segmental resections in both the small and large bowel.

A double suture line technique is followed. Very fine chromic catgut is used for mucosal approximation, and an interrupted silk suture line is used in the seromuscular layer. Crushed tissue is excised, and under no circumstances is such tissue incorporated in the suture line.

Gentle handling of the bowel is mandatory. Great care must be exercised in preserving the blood supply of the bowel adjacent to the suture line.

Postoperative Care

Parenteral penicillin and streptomycin are used routinely prophylactically for at least four days. Continuous Wangensteen suction is applied to the Miller-Abbott tube until gas is passed by rectum (usually the third or fourth postoperative day). The tube is then clamped for a period of twelve hours during which time 30 c.c. of water per hour is given by mouth. If no distention results, the tube is then gradually withdrawn and clear liquids are permitted ad lib. If intestinal motility seems to be adequate, a soft diet is begun twenty-four hours following removal of the tube.

In general, blood replacement to compensate for blood lost at the time of operation has been replaced by transfusion of whole blood while the patient is on the operating table or within a few hours following operation. In the past two or three years we have tended to keep the daily volume of infused fluids to 2500 c.c or less. Sodium chloride intake is rigidly restricted. This is especially important in the aged. As Coller and his associates[1] have shown, it is easy to err in giving excessive fluid and salt in the early postoperative period with resulting serious complications. Ascorbic acid, vitamin K and the B-complex vitamins are given postoperatively during the period of parenteral feeding.

The majority of our patients are made ambulatory on the first postoperative day.

Results

In the five-year period between January 1, 1946, and December 31, 1950, exactly 394 intestinal anastomoses without external decompression were done. In all cases intestinal decompression was managed by means of the Miller-Abbott or indwelling duodenal tube with the application of Wangensteen suction drainage. No cases in which exteriorizations or obstructive type resections were done are included in this report. Thirty-eight of these patients were subjected to ileocolostomy as a side-tracking procedure in inoperable

TABLE I.

	1946	1947	1948	1949	1950	Total Number of Each Operation
Right colectomy Ileo-transverse colostomy	11	14	17	21	18	81
Transverse segmental colon resection	7	5	9	13	6	40
Left colectomy (and splenic flexure resection)	5	2	5	11	11	34
Sigmoidectomy (segmental resection and anterior resection)	5	14	16	30	30	95
Resection small bowel End-to-end anastomosis	15	23	22	23	23	106
Ileo-colostomy and Ileo-sigmoidostomy	8	7	3	7	13	38
Total	51	65	72	105	101	394

TABLE II. OPERATIVE MORTALITY

	1946	1947	1948	1949	1950	Total Number of Each Operation
Right colectomy with Ileo-transverse colostomy	0	0	0	0	0	0
Transverse segmental colon resection	0	0	0	0	0	0
Left colectomy (and splenic flexure resection)	0	0	0	0	0	0
Sigmoidectomy (segmental resection and anterior resection)	0	1*	1	1	0	3.2
Resection small bowel End-to-end anastomosis	1	0	5	3	0	8.4
Ileo-colostomy and Ileo-sigmoidostomy	0	1	0	1	1	8.0
	Over-all Mortality					3.8

*Patients in whom failure of anastomosis was found at autopsy.

lesions of the large bowel. In the remaining 356, resections were done with primary anastomosis.

Table I shows a distinct trend toward anastomosis without concomitant or preliminary surgical decompression or exteriorization procedures. In both 1949 and 1950 the total number of such operations was approximately twice those done in 1946. It will be noted that left-sided colon lesions are now being resected and the bowel ends anastomosed at the same operation with increasing frequency. In dealing with right colon lesions one-stage right colectomy with ileotransverse colostomy is the only procedure used in operable lesions. This has been the policy in this clinic since 1938.[6] Whipple[10] reported favorable results with similar management in such cases in 1940.

The number of small bowel resections has remained relatively constant year after year.

Mortality.—Sixteen patients (Table II) in this group of 394 died during the thirty days following operation (3.8 per cent). Postmortem examinations were obtained in nine of these cases. A leak at the line of anastomosis was established in but one case. This patient had had an anterior resection for a lesion low in the sigmoid colon.

Coronary occlusion, pulmonary embolism, uremia, bronchopneumonia, and cerebral thrombosis were named as the other causes of death.

The highest mortality occurred in those patients having small bowel resection following mesenteric thrombosis. Progression of the underlying disease has usually been responsible for death.

Two deaths in the ileocolostomy group occurred in patients in which widespread peritonitis occurred due to perforation of the primary lesion. In another, extensive metastasis was responsible for death.

Discussion

There can be little doubt that the primary establishment of intestinal continuity, at the time of bowel resection is the ideal operation. This is so, however, only if function is rapidly regained and if morbidity and mortality are as low as with multi-stage operations. Saving the patient a second anesthetization and operation reduces the inherent risk. Our single death from peritonitis following the single stage resection demonstrates that in patients properly prepared infection from leakage is no longer a common cause of death.

The outlined preoperative preparation, we believe, is advantageous even when primary resection is not possible or even contemplated. The clean bowel possessing a good circulation is better handled in any operation deemed necessary at the time of laparotomy.

A few statements concerning the limitations of this method should be made. If there is ever any doubt about the presence of strangulation, prompt laparotomy is indicated. Acute colon obstructions with major proximal distention should not be so treated. Surgical decompression is necessary. In many such instances resection with anastomosis is possible, but in any case the removal of the segment of devitalized bowel should be the first consideration. Intubation will aid in the postoperative period. It will make the patient more comfortable and it will add to the safety of the operation.

Resection with primary anastomosis in the treatment of malignancies should never be done to permit of a limited excision of bowel and mesentery with the goal solely of re-establishing intestinal continuity. Our philosophy is in accord with that of Gilchrist and David, who so aptly stated[2] that the point of discussion in treatment of large bowel malignancies should be, "Can you remove all the cancer?" and not, "Can you sew two ends of bowel together." However, the most extensive excisions above the lower sigmoid lend themselves to this procedure. Intraperitoneal lesions below the sacral promontory are treated by one stage abdomino-perineal resection.

Ravdin and Abbott,[5] and Whipple[10] and others have stressed the importance of experience in the successful management of the Miller-Abbott tube. The possible dangers must be recognized. The use of fluoroscopy in passing the tube beyond the pylorus, the proper adjustment of the balloon, and the interpretation of the results of suction drainage cannot safely be the responsibility of inexperienced personnel. Fumbling in the early stages of acute obstruction can make the difference between success and failure in the passage of the tube into the distal small intestine.

It is obvious that the concept of primary anastomosis embraces more than the accurate approximation of two bowel ends. Intestinal suction-drainage, the use of chemotherapeutic agents, the infusion of blood and fluids, the correction of protein and vitamin deficiencies and the correction of electrolyte imbalances are all important adjuvants to complete therapy, and they have made possible a more direct and safe attack on lesions requiring intestinal resection and anastomosis.

Summary

Results obtained in the five-year period between January 1, 1946, and December 31, 1950, in 394 patients in whom primary intestinal anastomoses accompanied by intubation and suction drainage as the sole source of decompression are reported. Intestinal resections were done in all but thirty-eight of the reported cases.

The over-all mortality was 3.8 per cent.

Primary anastomosis following resection of bowel segments, or used alone in bypassing inoperable lesions, is a safe, rational procedure which saves the patient both time and prolonged incapacity. In the treatment of cancer it in no way modifies the radical approach to the eradication of the disease.

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WORLD HEALTH ORGANIZATION

More than 250 fellowships will be awarded this year by the World Health Organization to medical and allied personnel throughout the world for advanced study.

Technical and teaching personnel from WHO member states with at least two years of experience in the field in which the fellowship is sought are eligible for the WHO awards. Applications are made to WHO through the applicant's government.

The World Health Organization has already awarded approximately 800 fellowships in a variety of fields. These include, for example, public health administration, communicable diseases, nursing, maternal and child health, internal medicine, and surgery.

The Pan American Sanitary Bureau, Regional Office of the World Health Organization, awards from its own budget, additional fellowships for public health trainees in the Americas. During the past year the Bureau granted some thirty-five fellowships for studies extending from several weeks to a full academic year. This is in addition to the financing by the Bureau during 1950 of shorter-term training courses for more than eighty men and women in serological laboratories and a public health nursing workshop.

PROGNOSTIC FACTORS IN COLONIC MALIGNANCY

CLAUDE F. DIXON, M.D.
Rochester, Minnesota

I WAS delightfully overwhelmed when your secretary asked me to take part in this meeting honoring Doctor Wangensteen. I should like to think that the invitation to participate in the program this evening was extended because you, in some manner, consider my ability as a surgeon on a parity with that of the honored guest. But, since this is not true, I must deflate my ego and realize that I am here because Owen Wangensteen has been my esteemed close friend for twenty-five years. What greater honor could I ask?

Upon his return from the Western Surgical Association meeting in Denver in 1931, the late Dr. E. Starr Judd informed me that the outstanding presentation at that meeting was a paper by Doctor Wangensteen in which he reported three cases of mechanical obstruction of the bowel successfully decompressed by means of nasal catheter suction-siphonage. We are all familiar with the great advances that have stemmed from this epoch-making work and the devices Wangensteen has developed for the management of obstruction of the bowel. We are aware too of the value of the Wangensteen tube in the preoperative and postoperative patient. It must be a constant satisfaction to Dr. Wangensteen to realize that the procedure he advocated and carried out twenty years ago has world-wide acclaim to this day.

On this occasion I have chosen to discuss prognostic factors in colonic malignancy.

It is timely, I feel, to mention here that Wangensteen's contribution on the management of intestinal obstruction might have passed into oblivion for the reason that almost all of our national medical journals turned down his early manuscripts on the subject. Perhaps they were too lucid and therefore were returned as "not of general interest." But Owen was firmly convinced that he had found something of value, and today even editors of medical journals recognize his outstanding work on intestinal obstruction as well as in many other fields.

The past two decades have witnessed great advances in the prognosis of carcinoma of the colon from the standpoint of mortality, morbidity and five-year survival. Although some advance has been made for the cause of earlier diagnosis of malignant lesions of the colon through cancer detection centers, repeated pleas at medical meetings and writings in both the lay and professional press, the percentage of early cancers diagnosed still is too low. The simple diagnostic methods should be familiar to all. They are not new. Digital rectal examination of growths in the rectum was advocated six hundred years ago by Master John of Arderne with these words: "And thus shall ye recognize it. Ye shall put your finger in the rectum." Professor Strauss of Berlin invented and developed an electric sigmoidoscope a half century ago. Insufflating air into the colon after evacuation of the barium has been known and practiced for a quarter of a century. Neglect to perform these maneuvers by the physician is much too frequent, and every effort should be made to encourage physicians to follow the advice of John of Arderne.

The medical profession cannot assume all of the responsibility for this failure of early diagnosis. The patient must initiate the process leading to the detection and treatment of cancer. King and Leach, of Memorial Hospital, New York, undertook to determine some of the "whys" of delay in seeking medical care. They found the greatest tendency toward delay among the following groups of patients: (1) patients whose established reaction to previous illness had been to seek medical advice only when having an acute discomfort or pain; (2) those who interpreted their illness as being a common illness or a recurrence of some previous illness (bleeding of hemorrhoids, and so forth); (3) patients whose chief attitudes toward medical care were fear of the examination, fear of knowledge, or fear of surgical intervention or of disfigurement; (4) patients who believed that their financial resources were inadequate to permit payment for medical care.

A long, painstaking educational process will be required to remedy these conditions. Experience

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Read at the meeting of the Minnesota Academy of Medicine, Saint Paul, Minnesota, December 13, 1950. The assistance of Dr. John D. Rosin in the preparation of this paper is acknowledged.

From the Division of Surgery, Mayo Clinic, Rochester, Minnesota.

has shown that prompt diagnosis and therapy will reduce morbidity and mortality. The debilitating effect of delay on the part of the patient can be overcome by an educational program which will make the prospective patient not want to delay.

We shall all agree that time remains the greatest single factor that influences the final result in the individual case of malignancy: the time between initiation and discovery of the malignant process, and the time between discovery and adequate removal of the lesion. At some time, regardless of the patient's age and heredity and the location, grade or type of malignant lesion, cancer of the colon for the most part is curable. Visceral cancer is a silent disease. The period necessary for the transformation of normal epithelial cells from a normal mucous membrane into malignant cells is not known. The length of time before invasive features cause the appearance of symptoms is variable, perhaps averaging about a year. If digital and endoscopic examinations are performed as a routine on every patient, a larger number of persons will come to operation when the lesions are silent and curable by surgical means. Seventy-five per cent of lesions of the colon and rectum are within reach of the finger and the sigmoidoscope.

There are certain prognostic factors peculiar to the patient. It is well known that patients in the younger age groups have a poorer prognosis as a whole than do members of the older age groups, regardless of the grade of the lesion. In the young the grade of the malignant lesion tends to be higher and metastases occur earlier. Many physicians are not on the alert for colonic malignant lesions in patients under the age of forty years, although 11.5 per cent of the malignant lesions of the large intestine seen at the Mayo Clinic between 1907 and 1938[3] occurred under the age of forty years.

Associated colonic disease influences prognosis. In 100 per cent of cases of multiple polyposis of familial origin, if neglected, multiple carcinomas will develop, as a rule while the patient is still young, and with a most unfavorable prognosis. Multiple asynchronous primary carcinomas of the colon occur in 3 to 5 per cent of cases, indicating that a thorough exploration must be made at each laparotomy. With another disease of younger persons, chronic ulcerative colitis, carcinoma develops more often than for the population as a whole. Here also the outlook is poor.

The recurring visits of a patient who has been diagnosed as having a "tension state" or "anxiety neurosis" or as having an irritable bowel syndrome may lull us into a diagnostic lethargy, and we may overlook a developing malignant lesion of the bowel or diagnose it too late. Complete physical examination should be made at regular and definite intervals, in order to protect ourselves and to reassure the patient.

There is no advantage to obesity either from a social, economic or medical point of view. This applies also to obesity in cases of malignant lesions of the colon. Not only does carcinoma tend to spread faster if the patient is obese, but the presence of infection, even in a mild degree, makes the risk materially greater. Given the same pathologic process in two patients of equal age and otherwise equal chances, one finds that the obese patient presents a greater operative risk and has a poorer outlook from the standpoint of ultimate cure.[11]

The older patients, in whom malignant lesions of the colon are most frequent, are in the same age span in which the degenerative diseases of cardiovascular and cardiorenal origin predominate. These concurrent conditions are of prognostic value when considering survival rates and operative procedures.

The findings of the surgical pathologist are of inestimable value when considering the prognosis in any individual case of a malignant lesion of the colon. Broders' classification of the grade of the malignancy and Dukes' classification of the extent of spread are wonderful aids in placing cases in categories. As a rule the prognosis is worse as we ascend the numerical grade of malignancy and descend the alphabet in extent of spread. Nevertheless there are a sufficient number of exceptions to these classifications to encourage one to undertake radical operations in the hope of salvaging some of the patients.

Venous penetration and perineural involvement are factors not diligently sought for by most surgical pathologists. When present, they foretell a very grave prognosis: 95 per cent of the patients concerned will succumb within five years.[12] These factors can explain the poor outcome in a case even though the lesion is small, freely movable, of low grade according to Broders' classification and of a favorable type of Dukes' classification.

The published studies on lymphatic spread of carcinoma of the left colon and rectum by Westhues in the early thirties have been corroborated and extended during the past two decades by the painstaking and meticulous study of pathological specimens by several reputable individuals and clinics.[1,4-7] These special studies have confirmed the great importance of upward spread and have led to the proper evaluation of lateral and retrograde lymphatic involvement. The usual route of spread of cancer is by way of the lymphatics accompanying the superior hemorrhoidal vessels. The spread may be discontinuous, and involved nodes may be found many centimeters proximal to the lesion. Lymphatic spread more than 1 cm. distal to the primary lesion does not occur until proximal lymphatics are blocked, and in any case, distal spread is not extensive. Lateral spread, through lymphatics that course along the levator ani muscle and accompany the middle hemorrhoidal vessels, does not occur as a rule when the distal edge of the lesion is higher than 6 cm. above the dentate line.

The site of the malignant lesion is an important factor when considering the prognosis. In general, right-sided colonic malignant lesions have a better prognosis than left-sided lesions, both in cases with and in those without nodal involvement; in both groups the five-year survival rates show an average difference of about 10 per cent in favor of cases in which the lesions are in the right colon. It is the impression of many surgeons that the better prognosis of right-sided lesions is due to the fact that a right colectomy is routine for these tumors whereas segmental resection is employed for removal of left-sided lesions. A recent innovation is left colectomy for left-sided lesions. Time and statistics will determine whether this added surgical risk can improve the present mortality and survival rates.

True cecal lesions have a poorer prognosis than those occurring in the ascending segment. This has been interpreted on the basis that the resections for cecal lesions have not been as extensive as those for lesions in the ascending segment, that is, they have not been carried around to the mid-transverse colon.

Both the hepatic and splenic flexures are blind spots for the average roentgenologist, and lesions located in these sites may not be detected even when roentgenologic examination has been performed after administration of a barium enema. If clinical symptoms indicate a lesion to be present, an exploration is warranted even if the roentgenograms are negative. The flexures are also more difficult to handle surgically than other segments of the colon because of the great tendency of lesions in these sites to infiltrate the stomach and other vital organs. Lesions of the transverse colon can be included in this last statement.

Tumors of the descending colon and sigmoid have a great tendency to produce obstruction, owing mainly to the smaller calibers of the lumina as compared with the caliber of the right colon. The poorer prognosis of obstructing lesions than of other lesions is well known.

Lesions of the lower two-thirds of the rectum have a poorer prognosis than those of the upper third of the rectum and lower sigmoid mainly because lateral lymphatic spread and local extension to the bladder, prostate or vagina make the disease difficult to eradicate surgically. It is for this reason that I have advocated and practiced radical posterior resection in the Kraske position following previous abdominal exploration and performance of a colostomy. With this operation a hysterectomy or prostatectomy can be done if necessary.

The tremendous advances in the preoperative and postoperative care of patients have demonstrated how important these clinical factors are to the prognosis. They were considered of such significance that many years ago a separate service was organized at the Mayo Clinic for the care and treatment of intestinal obstruction and colonic diseases, which was under the joint supervision of internists and surgeons especially interested in these conditions. This step alone materially favored the prognosis.

In the summer of 1931, Wangensteen began to emphasize the successful decompression of mechanical obstruction of the bowel by nasal catheter suction-siphonage, and a great advance in the preoperative and postoperative care of patients was founded. Malignant lesions of the colon, and especially of the left colon, are frequently accompanied by varying degrees of chronic obstruction and, on occasion, of acute obstruction. The greater the obstruction, the poorer is the prognosis. When there is complete obstruction, the five-year survival rate is twice as poor as when obstruction has not been present.[10] When the ileocecal valve is competent, a closed-loop obstruction results and an emergency colostomy is the treatment of choice, although nasal suction is a valuable adjunct. Nasal suction has its greatest value in colonic surgery as a postoperative prophylactic measure to combat distention and to protect the anastomosis.

The better understanding and appreciation of the physiology and biochemistry of the body fluid compartments, along with the rational replacement and control of the body electrolytes, have favorably influenced prognosis. The development of blood banks made the correction of anemia easier and enabled more extensive surgical procedures to be performed. The investigation of substances other than blood and plasma to combat shock is constantly being carried on at the Mayo Clinic. Such substances as dextran, periston and plasmoid have proved of value and probably will become other adjuncts to safer surgery.

The advent of chemotherapeutic drugs and later the discovery of antibiotics are the highlights of the past decade. During 1939 and 1940 the hospital mortality rate associated with operations on the colon decreased by more than 50 per cent, and this improvement in rate coincided with the first use of sulfonamide drugs in the peritoneal cavity. In 1942, sulfasuxidine was introduced and demonstrated that it was capable of reducing the bacterial content of the bowel many thousandfold. These earlier chemicals and antibiotic agents have now been replaced by better ones, and even better ones may be anticipated in the future. Dearing and Heilman have recently published results of a comparative study of various antibacterial agents on the intestinal tract in man. Their conclusions were that aureomycin and terramycin are superior to all others. At present we are using these drugs exclusively in the preoperative preparation of patients who are to undergo operations on the colon.

It is the summation of all factors determined preoperatively and at the time of operation, by both the surgeon and the surgical pathologist, that influences the surgeon's judgment as to what technique he shall employ and the extent of the resection indicated in the individual case. The size of the tumor exerts little influence on the ultimate prognosis. Of much greater importance in the eventual outcome is the degree of extension and penetration. Cases requiring extensive surgery have a mortality rate at least double that for cases in which the lesions are confined to their primary site.

The development of multiple-stage procedures for surgery of the colon was the result of necessity to overcome the practically prohibitive mortality rate associated with colonic surgery. The three-bladed clamp and the defunctioning of the left colon by means of preliminary colostomy were great innovations. With the discovery and use of antibacterial agents the necessity for multiple stage procedures became less. One-stage operations for lesions of the colon have perhaps made more radical extirpation possible and with a reduction in mortality rate. A place for multiple-stage procedures in my opinion still is advisable under certain conditions such as obstruction, marked inflammatory reaction, unusual obesity or other technical factors which would make the operation unusually hazardous.

The experience and ability of the surgeon as prognostic factors are often lost sight of when considering the ultimate outcome of surgical procedures for malignant lesions of the colon. On the native skill, judgment and experience of the surgeon the operability or inoperability of the lesion will finally rest. The wider the experience of the surgeon, the higher will be the operability rate.

The improvements in preoperative and postoperative care of patients, the better understanding of the modes of spread of carcinoma and the more thorough training of young surgeons have permitted a broadening of the indications for radical surgical intervention and the development, revision and reintroduction of surgical technique which, it is hoped, will improve the prognosis of cancer of the colon even more.

In conclusion let me thank you for the invitation to take part in this memorable occasion.

When I think of Dr. Wangensteen and his indefatigable work in scientific investigation, his truly great mastery as a surgeon and a teacher of surgery, I cannot recall anything more fitting to his voluminous, invaluable contributions than a remark made by Louis Pasteur: "In the field of science chance only favors the mind that is prepared."

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PULMONARY AND EXTRAPULMONARY TUBERCULOSIS WITH A DISCUSSION OF THE HOST RESPONSE TO TUBERCULOSIS

DAVID T. SMITH, M.D.
Durham, North Carolina

THE remarkable reduction of the death rate from tuberculosis from 200 per 100,000 in 1900 to twenty-six in 1950 has given many laymen and some physicians a false sense of security and a belief that tuberculosis is no longer a disease of major importance. Although now standing as seventh or eighth among the causes of death in the United States, it is the number one cause of death from infectious diseases and remains the chief cause of death in all individuals between the ages of fifteen and thirty-seven. Recent statistical studies have shown an actual increase in the number of clinical cases while the death rate was declining.[4] This increase is probably more apparent than real and has resulted from the application of mass survey methods to case findings. However, there has been an increase in the percentage of tuberculin reactors among American soldiers who have been overseas and among recent emigrants from Europe.[3]

The tuberculosis problem is no longer the exclusive headache of the sanatoriums and special clinic physicians but has become the headache of every internist. Data obtained by doing a routine x-ray on every patient admitted to a general hospital have been compiled from six widely scattered hospitals and reveal a rate of 1.1 per cent of active cases or a calculated total of 40,000 undiagnosed cases each year in the general hospitals of the U.S.A.[1] Then patients who present symptoms that simulate a great variety of infectious, neoplastic and functional diseases are difficult to diagnose; and it is obvious that many are not diagnosed sufficiently early to be saved by the new treatment with streptomycin or para-amino salicylic acid.

A brief review of the physiological and pathological reactions of the body to the tubercle bacilli and its products should make somewhat easier the task of the internist. The tubercle bacillus produces neither endotoxin nor exotoxin; therefore, the primary reaction of the tissues to the primary invasion of tubercle bacilli is purely a mechanical one to an inert foreign body. The nonspecific mechanical and humoral mechanism is efficient in eliminating saprophytic acid-fast *Mycobacteria.* The avian type of tubercle bacillus is almost always destroyed, and the bovine bacillus is somewhat handicapped; although it is not clear how much of the destruction of the latter two is nonspecific and how much is the result of the development of a low grade but definite humoral immunity.

The human type of bacilli finds a suitable environment for growth and multiplies at a relatively rapid rate for several weeks. During this period of unhindered growth the bacilli are carried by mechanical means, largely in polymorphonuclear cells and monocytes, to the regional lymph nodes and on through the entire lymphatic system to the thoracic duct, the heart, and out to the remainder of the body through the general circulation. The lymph nodes act as mechanical filter beds and those nearest the *point* of primary invasion will show the most enlargement. Thus, we expect enlarged hilar lymph nodes when the primary is in the lung, neck nodes from an infection through the tonsils, mesentery nodes from a primary through the intestine and local superficial nodes from any point on the skin. The *degree* of enlargement varies with the age of the patient and the quality of innate resistance. In children, it is the rule for the nodes to enlarge to a degree which is easily detectable by physical or roentgenographic examination, and in general the larger the regional lymph nodes the worse the prognoses. In adults it is the exception, rather than the rule, for the lymph nodes to be enlarged sufficiently to be detectable clinically. During the past twenty years, we have seen only three students who developed easily detected lymph nodes following the conversion of a negative to a positive tuberculin. As in children, the larger the lymph nodes, the worse the prognoses. Although the percentage of adults who develop clinically detectable lymph nodes is

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Dr. Smith is professor of bacteriology and associate professor of medicine, Duke University School of Medicine.

small, the total number is not insignificant, being about as frequent in a general hospital as lymphomas of the Hodgkin's type and exceeding in number such well-known conditions as hemochromatosis and Addison's disease.[9] About one-half of the patients with progressive primary tuberculosis have palpable spleens. These patients with or without enlarged spleens are usually incorrectly diagnosed as neoplasia, Hodgkin's disease, aplastic anemias, histoplasmosis, or coccidioidomycosis. Unfortunately, as the amount of tuberculosis infection in the general population decreases, more and more individuals will become adults before they receive their primary infection, and we may expect an actual numerical increase in the number of patients with progressive primary infections in our general hospital wards.[9] Before the discovery of streptomycin, the diagnosis in this type of case was purely an academic exercise, but now the difference between recovery and death may depend upon an early diagnosis and prompt treatment.

A second phase of the primary infection of clinical significance is the period of dissemination which begins when the rapidly growing bacilli escape from the lymph barriers and drain into the general circulation. Microscopic embolic foci of bacilli are trapped in the brain, bones, bone marrow, liver, spleen, kidneys and other organs and form the seed from which extrapulmonary tuberculosis develops over the succeeding years. This phase of dissemination is brought to a close after a few weeks by the development of a low grade but definite degree of humoral immunity which is nearly always accompanied by an allergy to tuberculin. There is a difference of opinion as to which of the two mechanisms is more important in reducing if not completely eliminating the dissemination of bacilli. Many investigators believe that the immunity is the result of the allergy. On the other hand, Rich[6] has presented considerable evidence for the belief that immunity and allergy are two entirely separate and distinct phenomena and that allergy is essentially a harmful reaction. One of the complications involved in the problem was the difficulty in demonstrating the presence of humoral antibodies. The ordinary humoral antibodies such as agglutinins, precipitins and complement-fixing antibodies could be demonstrated in experimentally infected rabbits but rarely in patients with active tuberculosis and almost never in patients with early minimal infection. The new serologic method introduced by Middlebrook and Dubos[5] and modified by Smith and Scott[7,8,10] detects antibodies to tuberculin or more specifically to the carbohydrate complex[5] of the tubercle bacillus. It has not been demonstrated that this antibody is a protective antibody but it occurs in patients who have had a recent subclinical infection, as shown by a conversion from a negative to a positive tuberculin reaction, and in most students who have received a BCG vaccination. At least 95 per cent of active incipients and moderately advanced cases have these antibodies in their serum, but cases of tuberculous meningitis and progressive cases of far advanced tuberculosis are usually negative. Thoroughly arrested cases also are usually negative. In a period of months or years after a spontaneous conversion the antibodies disappear while the tuberculin persists. After BCG inoculation the antibodies often persist when the tuberculin test has become negative and in a few instances antibodies have appeared in good titers although the tuberculin test never became positive. Of practical importance is the observation that the tuberculin reactions may induce the appearance of antibodies in patients who had none before the skin test was performed.[10] This irregular behavior lends support to Rich's view that allergy and immunity are different and independent phenomena although both are induced by the tubercle bacillus.

With the appearance of allergy, and the accompanying low grade immunity, dramatic changes occur in the tissues which are reflected in the clinical course of the disease. The local multiplication of bacilli in the tissues is checked and many organisms disappear. But with allergy comes inflammatory reactions which frequently go on to necrosis of tissue and caseation. Tubercle bacilli and tuberculin are no longer inert substances but become highly toxic materials for the "sensitized tissues" although still harmless for the uninfected. The local reactions are redness, swelling, pain and the constitutional reactions include fever, rapid pulse, malaise, anorexia and loss of weight. Laboratory studies show an increase in the sedimentation rate, an increase in the percentage of polymorphonuclear cells, with a corresponding reduction in the percentage and total number of small lymphocytes. The large lymphocytes and monocytes may remain normal but are frequently increased. The constitutional symptoms are in effect the result of a systemic tuberculin reaction and can be duplicated in a thoroughly arrested healthy patient by the subcutaneous injection of a small amount of tuberculin. One of the objects of rest in the treatment of tuberculosis, both the general rest in bed and the surgical measures resulting in localized rest, is to reduce the amount of tuberculin which is absorbed from the local lesions.

Other peculiar characteristics of tuberculosis are the slowness with which resolution occurs and the extensive development of fibrosis in the lesions. The fibrosis may be interpreted as a response to the local tissue necrosis caused by local tuberculin reactions. Some of the slow resolution may be explained by the persistence of tubercle bacilli in the lesions. Tubercle bacilli, in contrast to pyogenic cocci, frequently live for years in the local lesions. But caseous lesions do persist for years after all the bacilli are dead. Tubercle bacilli synthesize *in vitro* and presumably *in vivo* unsaturated fatty acids, which are supposed to inhibit the natural autolytic enzyme systems which liquefy the infiltrates in ordinary pyogenic pneumonias. Therefore, the chronicity of tuberculosis can be explained in part by the persistence of bacilli in the lesions and in part by the difficulty the body has in autolysing and eliminating the granulomatous and caseous product of the reaction between the sensitized tissues and tuberculin.

It is very easy to demonstrate in animals the difference between a primary infection and reinfection. The reinfected animal, whose tissues are already sensitized, shows marked constitutional symptoms within a few hours after reinfection; pneumonic lesions appear in twenty-four hours and large areas of caseation can be found in ten days. More destruction is produced in the lungs and cavity formation is more common, healing by resolution is less complete and more scar tissue residues are left.[2] In animals and in man there is very little if any gross involvement of the lymph nodes in reinfection tuberculosis and the spleen is almost never enlarged. Theorectically, there should be no difference between a primary infection and a reinfection *after* the tuberculin test becomes positive because the tissues after this time are "sensitized" and react specifically to tuberculin. Practically it is impossible in many cases in adults, even with the knowledge of a recent conversion of a negative to a positive tuberculin test, to detect any difference between the x-ray lesion symptom or clinical course of a primary and a reinfection tuberculosis. In these instances there has been no gross infection of the lymph nodes with the primary invasion but the tissues have been sensitive so when tubercle bacilli again reach the lungs the allergic destructive type of lesion occurs. However, I cannot agree with the clinicians, who now constitute a majority, who teach that there is no point in trying to differentiate between primary and reinfection tuberculosis because they all behave alike. Those adults who do develop detectable lymph node enlargement following the primary have more extensive disease and a much worse prognoses than either the primary without detectable lymph node lesions or the classical reinfection syndrome.

There is a difference of opinion about the source of reinfection tuberculosis. Everyone agrees that primary tuberculosis is exogenous in origin and in most cases is inhaled into the lungs. Some, perhaps the majority of clinicians, believe that reinfection tuberculosis is also exogenous and breathed in with the air. The minority of clinicians and nearly all pathologists believe that reinfection tuberculosis is endogenous and reaches the lungs from residual caseous lymph nodes left by the previous primary.[11] I am among the minority of clinicians who believe in endogenous reinfection.

This problem is not entirely academic, since the success of BCG vaccination in preventing reinfection tuberculosis, is dependent in a large measure on which theory is correct. If the exogenous theory is correct, then BCG vaccination can give no better protection than a spontaneous subclinical infection, which results in a positive skin test. If most clinical tuberculosis is endogenous reinfection from caseous lymph nodes left by the primary, then BCG may produce sufficient immunity to prevent completely the infection of the lymph nodes when fully virulent bacilli are subsequently breathed into the lungs. We favor BCG inoculation for medical students, nurses, and hospital attendants but not for the general population in the country.

Tuberculosis is characteristically a relapsing disease. This is not difficult to understand when we realize that viable bacilli may remain dormant for years in relatively insignificant lesions but will become active again when the physiological balance is upset by (1) unusual physical exercise, (2) poor diet, (3) intercurrent infections, or (4) psychic strains of various types. The recent attempts of the thoracic surgeons to cure active, moderately advanced tuberculosis by excising the lobe or lobes which contain the major foci were in most instances disastrous because the small, fresh, but apparently harmless lesions in the other lobes became active and spread throughout the lungs.

Mechanical factors play a large part in the course of tuberculosis. A small lesion in the lungs which becomes caseous and ruptures into a bronchus is rarely serious. A lesion of the same size rupturing into a pulmonary vein results in miliary tuberculosis or one in the brain causes meningitis and miliary tuberculosis. A moderate sized or large lesion in the lung may become caseous but be surrounded by a dense fibrous envelope which prevents the escape of tubercle bacilli and remains a relatively benign tuberculoma. Another caseous lesion of the same size empties its contents into a bronchus and becomes a cavity. The inner wall of the cavity then becomes an ideal place for the multiplication of enormous numbers of bacilli. There is an adequate supply of free oxygen from the bronchus, unlimited food from the serum tissue juices which drain into the cavity and no accumulated waste products to slow multiplication of the bacilli since their products are being continually expectorated in the sputum. The spread of the disease to other parts of the same lobe and to other lobes is most often by mechanical aspiration. The treatment directed toward the closure of cavities is also mechanical. The granulation tissue in the wall of the cavity becomes fibrous tissue which contracts until the cavity is closed unless the process is prevented by other mechanical factors. Rest in bed allows the diaphragm to rise, reduces the pulmonary volume, relaxes the lung and favors cavity closure. Crushing the phrenic nerve, pneumothorax and thoracoplasty are all mechanical processes which relax the lung all favor the fibrous tissue which is trying to close the cavity. Under other conditions scar tissue becomes a liability rather than an asset. Multiple small areas of disease, which caseate but do not excavate, stimulate the formation of fibrous tissue which in contracting may rupture alveoli and destroy the function of the healthy lung.

Although hemorrhage occurs in one-third of all patients with pulmonary tuberculosis, it should be regarded as a mechanical accident. Usually blood vessels are sclerosed by the tuberculous disease before they are eroded. Occasionally the ulcerative process cuts a vessel before it is sclerosed and hemorrhage occurs. If a large pulmonary artery is eroded, the patient dies within a few minutes of an exsanguinating hemorrhage. Fortunately, this is extremely rare. The chief danger of pulmonary hemorrhage is not the loss of blood but the mechanical spread of the disease to other lobes during the hemorrhage.

Pleural, pericardial and peritoneal effusions result from a combination of mechanical and immunological factors. A small lesion ruptures through to a serous surface and an effusion results if the patient has a sufficiently high degree of sensitivity to tuberculin. There is, however, a partial desensitization following the formation of fluid so the tuberculin skin test may be temporarily depressed but returns to or near its former level after the absorption of the fluid.

Streptomycin and PAS (para-amino-salicylic acid) are now accepted as useful agents in the treatment of certain types of tuberculosis. The German drug, TB 1, is much more toxic than streptomycin and PAS and should be used cautiously and only in cases with organisms which are resistant to the other agents. Neomycin is about as effective as streptomycin and works on organisms resistant to streptomycin, but unfortunately produces damage to the kidneys. Viomycin has been used on only a few streptomycin resistant cases. The results were encouraging but there was in some instances a reduction in the calcium and potassium of the blood with the development of tetany.

Streptomycin is definitely superior to PAS. The advantages of oral administration of PAS is almost counterbalanced by the difficulty which many patients have in retaining the drug without digestive disturbances. Tubercle bacilli become resistant to both drugs in a period of twenty to 120 days. The simultaneous administration of 1 gram daily of streptomycin and 8 to 12 grams of PAS about doubles the period of effective treatment before resistant forms appear. Streptomycin has proven most effective in the treatment of tuberculous laryngitis, tracheitis, bronchial tuberculosis, intestinal tuberculosis, and multiple sinuses in the subcutaneous tissue. Acute tuberculous pneumonia and recent bronchogenic spreads often respond in a dramatic fashion. Temporary dramatic improvement in miliary tuberculosis is seen often but the relapse rate is high leaving a respectable residue of 30 to 40 per cent which have apparently recovered. In such desperate cases the dose of streptomycin is high—2 to 3 grams daily—and vertigo and partial deafness frequently results. Intrathecal streptomycin in 100 microgram doses is used in tuberculous meningitis—daily at first and then at longer intervals as the cells in the spinal fluid decrease.

Streptomycin and PAS are of very little value in the ordinary fibrocaseous type of pulmonary tuberculosis. Patients with cavities, particularly, get little benefit from the drugs because the organism rapidly acquires resistance in a few weeks. In general, streptomycin and PAS should be regarded as a supplement to and not a substitute for the standard methods of treatment. They should never be given as the ultimate and definitive treatment but only as a part of a planned course of treatment which usually includes sanatorium residence or some form of surgery. They should not be given to ambulatory patients or patients staying in their own homes except under most unusual conditions.

ACTH produces dramatic but apparently only temporary improvement in patients with tuberculosis.[13] Within two or three days the temperature is normal, the tuberculin test becomes negative and laryngeal lesions show evidence of healing. But when the drug is discontinued the laryngeal lesions relapse, the fever becomes higher than before treatment and the pulmonary lesions may spread. The combination of ACTH and streptomycin is now being investigated. It is probable that ACTH will be found to be useful when used in the proper dose and in the proper combination with other agents.

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THE PRIVILEGED FEW

The lie persists and millions of people still believe that capitalists are a privileged few. What makes this lie especially dangerous is that the misguided millions who have accepted it so readily as a fact, are by no means willing to accept it as an unalterable economic condition. Many of them desire actively to do something about it.

They argue, truthfully, that industrial wealth stems initially from the God-given natural resources with which our nation has been so richly endowed; and they insist, quite plausibly, that the basic industries which transform those precious raw materials into useful end products, should belong to the people . . . not just to the privileged few!

I would go even further. I believe that *all* enterprise should belong directly to the people, and I hope that the day will come when every American family will purchase a share of American industry, however small or large that share may be.

That, to me, is true public ownership, and I favor it just as ardently as I oppose Government ownership. Let no one tell you that the two are the same. They are as far apart as the poles.

Today, American enterprise does belong to the people —to the people who have built it with their ingenuity and maintained it with their savings. I know of no other nation in the world where such vast industrial resources as ours are owned and controlled so extensively, and so directly, by the public. I do know of other nations, however, where the Government has seized the industries created by its people, and placed them under control of politicians and bureaucrats.

That, to me, is the antithesis of real public ownership. It is *truly* control by the privileged few!—Reprinted from March, 1951, issue of *The Exchange,* publication of New York Stock Exchange.

PROBLEMS OF RURAL MEDICAL CARE

FRANKLIN D. MURPHY, M.D.

Dean, University of Kansas School of Medicine

Kansas City, Kansas

RECENT dramatic advances in the prevention, diagnosis, and treatment of disease, coupled with more accurate analyses of these advances by the lay press, have served to stimulate and excite the imagination of the people of our country in matters of health. An additional important contemporary influence has been the development of a social philosophy which argues, among other things, that first-class medical care should be available to all citizens under all circumstances. It seems clear that today most people, with rare and unfortunate exceptions, fully accept the principle that the availability of health service is a necessity, not a luxury. This expansion of interest in health services has stimulated the thinking of persons of all groups and in all geographical areas, and this applies particularly to rural and farm groups.

The past twenty years has seen the intensive development of specialization in medicine and in a large measure at the expense of general or family practice. It is not proposed here to argue the merits of specialization except to state that we must somehow get back into our medical thinking the point that it is just as important to have skilled family practitioners who can evaluate the total patient in his environment as it is to have highly skilled technicians who should in effect be only technical consultants. In other words, it is perhaps just as important that the total picture of the physical and emotional needs of the patient be studied through the low-power, wide-angle lens of the family practitioner as it is that certain parts of this patient be studied through the very circumscribed and highly magnified field of the oil immersion lens of the specialist. Suffice it to say, however, that the specialist is almost always attracted to the larger urban areas where are logically located the great medical centers, or at least substantial technical facilities, and other specialists. The rural practitioner is perforce the family or general practitioner. Any pattern which directly or indirectly reduces the production of men interested in general practice will inevitably reduce the flow of practitioners to rural areas. This is an extremely important consideration because well over 40 per cent of our citizens are designated as rural citizens and a system of medical care which is not designed to provide them equally adequate service is in effect a good system of care for little more than half the citizens of our country. The rural family should be entitled to just as good medical care as their urban neighbors. Techniques to provide such care must be continually explored and tested.

Before exploring possible ways of attacking this problem, it is important to evaluate the thinking of people of the rural areas themselves. We in the medical profession, be it in the medical schools or in practice, have fallen down badly in attempting to explain to the people some of the problems involved in providing good medical service and, perhaps more importantly, as regards rural practice, the meaning of good medical service in 1950 and the intelligent use of it.

Fifty years ago when rural roads were mainly mud roads and when the horse and buggy was the main means of transportation, twelve or fifteen miles represented a separation of an hour or more in time. This meant, for example, in a certain county the desirability of a relatively large number of appropriately located physicians. Today that same fifteen miles on all-weather roads with an automobile represents at most twenty or thirty minutes by car. That is to say, fewer physicians are today needed to handle any given geographical rural area. We must explain to the consumers of rural medical care that just because six particular towns in their county had doctors fifty years ago by no means suggests that that same number is needed today. They must be encouraged to think regionally, even in small areas, such as a part of a county. It is true that many citizens of small towns of one thousand people or less who are without physicians and who feel they are remote from medical care are in fact considerably closer to the office of a doctor or a hospital in terms of

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time than many inhabitants of the large cities of this country. Some reduction in the total number of physicians in rural areas in most states of this country over a forty-year period was to be expected and is quite logical.

The rural citizen too often regards his local physician of 1950, from the scientific point of view, as he did the family doctor of fifty years ago. This, in effect, leads to two things:

1. He will go to his local physician to have a cut bandaged or to get his throat swabbed but for anything more significant will go directly to the larger city. This, in effect, makes the local family practitioner nothing more than a first-aid man, and it is to be hoped that we are not today graduating from medical schools men who are content to be first echelon maintenance men.

2. Furthermore, the young physician settling in a small community by himself is too often driven away by continuing unreasonable demands on his time and energy so that he finds he is working twenty-four hours a day, seven days a week.

The young men and women who leave country practice for such reasons do it justifiably, and communities who do not learn how to utilize their medical service properly will not long keep it, or if they are able to keep it, it will be of an increasingly lower effectiveness. However, as one talks to residents of rural areas and representatives of farm groups, one finds in general that no one has ever tried to explain these relatively simple facts to them and, further, that when they are explained, their basic logic is accepted immediately. This is further proof of the inadequacy of positive lay education on the part of the medical profession.

However, it should not be inferred that we have resolved all of the problems of rural medical care. Such problems exist and they are real and require positive, progressive, and imaginative efforts for their solution. These efforts must emphasize co-operation because of the justifiable feeling that the challenge of the last half of the twentieth century will be as much integrating what we now have in all fields as it will be the further expansion of these fields. Integrated and co-operative effort is economical, not only in dollars and cents but also in time, and is certainly effective. Certain factors loom large in any consideration of rural medical practice.

The lack of tools to practice modern medicine, i.e., hospital and equipment, has been one of the major items influencing young physicians against entering country practice. This is entirely understandable. We train our young men and women in modern hospitals with modern equipment and paint the picture of more and better techniques to come. Is it any wonder that they are then reluctant to go to areas where by virtue of the lack of facilities they are only capable of functioning at 50 per cent of capacity? Probably the greatest single influence designed to correct this deficiency has been the passage and implementation of the Federal Hospital Construction Act (Hill-Burton bill). All over this country, on a decentralized basis, modern well-equipped medical workshops are springing up. This enlightened piece of federal legislation is an excellent example of how government can work with individual communities without compromising the integrity or depressing the initiative of the community. It is also proper and fitting that a higher percentage of these federal funds have been allocated to the lower income states because it is just those states where such facilities are most needed.

However, the original Hill-Burton concept did not go far enough. The average physician will spend much more time working in and out of his office than in and out of a hospital. Therefore, the existence of a modern well-equipped office is also a *sine qua non* to first-rate medical service. The young physician of today on the completion of his internship or a period of residency training is in a much different position than his predecessor of fifty years ago. He has had a longer educational experience and is therefore, older and his expense has been greater. Capital equipment necessary to start practice at a high level is infinitely greater today and, finally, society has begun to recognize a basic biological fact, leading to earlier marriage.

What, then, is the picture of a high percentage of our young physicians desirous of entering practice, and just having completed their education? They are frequently in debt, in their late twenties, often married, with or without children, and facing the prospect of compounding their debts in order to equip themselves to carry out modern practice. They further must consider the acquisition of office space with no guarantee but only the prospect of an income to compensate for these factors. On the other hand, they see in the larger urban areas opportunities to enter practice as associates or partners with already established doctors, with guaranteed income initially and no capital outlay. In effect we then have the situation of the young physician desirous perhaps of living and practicing in a small community but with certain serious problems, mainly financial, to be resolved at the same time that we find many hundreds of communities in which the income level is relatively high and who are anxious to do something in order to attract this physician.

The solution to this dilemna, which is working well in Kansas and other states in the nation, depends upon community initiative, which in turn depends upon medical stimulation and direction. Any town can build and equip a modern medical office or community clinic for between twenty and thirty thousand dollars. This facility is the magnet which draws the young doctor to the town and also guarantees that their doctor can operate at a high degree of efficiency, which is, of course, to the great benefit of the citizens. The money may be raised by bond issue, by private subscription, or by tax levy. Amortization agreements can be made with the young physician so that he may begin purchasing first the equipment and later, if it is mutually agreeable, the building itself. This community clinic may house one or more doctors, possibly a dentist, and would have laboratories, diagnostic x-ray facilities, and the like. In certain instances it would be highly desirable if the county health officer as well as the county health nurse or nurses had their offices in the same facility, in which event one could begin to really speak of a Community Health Center. In certain areas of the country where distances are very great and population sparse, a few hospital-type beds might well be built along with the clinic in order to handle emergency and obstetric cases. One envisages, therefore, at the front line the community clinic or health center backed up by the small rural hospital, which in turn bears a relationship to the medical center of the large city. We hear a great deal these days of "private enterprise" and "local and individual responsibility." Surely the community clinic concept represents local responsibility and enterprise in their purest forms and from such a concept both the consumer and producer of medical care are coequal beneficiaries.

One of the frequently repeated objections of the young physician to remote rural medical practice is the feeling on his part that he will become "medically isolated." We hope that our graduating doctors have a sense of pride in their professional knowledge and ability and a sense of obligation to the maintenance of this ability. To mitigate against such feelings of isolation there must be developed on a broad, realistic and effective basis postgraduate programs, tailor-made not for some theoretical ideal but for realities. Such programs must include:

1. The so-called refresher-type courses usually held at a medical school or medical center, lasting from three days to a week, well prepared and well integrated.

2. Circuit-type courses in which medium-sized communities strategically located throughout a given geographical area are chosen as centers. Teams of physicians may then, monthly or oftener, go out on this circuit with up-to-the-minute prepared discussions of practical every-day therapeutic and diagnostic problems. Experience has shown that this method of carrying education to the busy practitioner is very effective, not only in terms of transferring practical information but also in academically stimulating him at frequent intervals.

3. Opportunities must be made particularly for men in general practice to return to the medical school or medical center at intervals of several years and for periods of time ranging from one to twelve months. This educational experience, which might be called "in-residence" as differentiated from "residencies" for specialities, should provide a minimum of didactic training, and a maximum of "laying-on of the hands" experience. Such opportunities should be available in all fields of medicine.

4. Residency training programs in the various medical specialities should be continued and strengthened, not quantitatively but qualitatively. Furthermore, the man who has had a general practice experience should certainly have as great an opportunity to enter such residency programs as the man who has just completed an internship.

If the above-mentioned techniques are carried out effectively, certainly the medical schools will be able to indicate to their graduating students that no matter where they practice they will not be far distant from the stimulating influence of continuation education.

One problem that remains as yet unanswered is that of the quantity of production of doctors, nurses, and technicians of all types. It is clear that if we are underproducing the medical personnel, no technique, however attractive, will get enough people to all of the right places. On the other hand, it would be an equally serious and wasteful mistake to supersaturate this country with an excess. The answer to the question of shortage or excess is not clear to the author. Perhaps the answer lies approximately in the statement that there is now an over-all numerical shortage which, however, may soon be taken care of by the expansion of exisiting medical schools. In any event, a more precise answer may be available after the completion of certain major surveys now under way, particularly one on the problems of medical education being carried out jointly by the Association of American Medical Colleges and the American Medical Association and the broad-gauge survey of the Brookings Institute.

It should be noted that some of the techniques described above are mainly possible only in an area of relatively high per-capita income. In such states, individual initiative and local enterprise are capable of bearing most of the load. In those areas of our country where per-capita income is below standard, it seems clear that government, be it local or federal, will have to take larger and more positive steps in both the provision of adequate facilities and, more particularly, in the possible subsidy of the health personnel necessary to operate these facilities. No physician who subscribes both literally and morally to the Hippocratic Oath and the American Constitution can deny the obligation of providing such fundamentals as adequate educational opportunities and first-class medical care to all people regardless of race, color, creed, or income status. It is high time for local and federal government as well as the members of the health professions to sit down and work out some of these problems on the principle that certain basic needs must be filled with the government providing aid only when local and individual responsibility cannot carry the full load.

There are today many young physicians in training who dislike the pressures and tensions of urban living. They would like to raise their children and cast their lot in smaller, more rural communities. Certain techniques to encourage them in their plans have been tried and found useful in various parts of the country. They require for their general implementation an understanding of the realities of modern medical practice on the part of both medical schools and the consuming medical people. They provide a great challenge to various segments of the health professions to demonstrate imaginative, thoughtful, and progressive medical statesmanship and, most of all, they provide both the producer and consumer of medical care with those conditions necessary for happy professional and social living.

PROGNOSTIC FACTORS IN COLONIC MALIGNANCY

(Continued from Page 427)

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RHEUMATIC PNEUMONIA

ROBERT B. TUDOR, M.D., and ROBERT R. KLING, M.D.
Bismarck, North Dakota

BECAUSE of the relative rarity of rheumatic heart disease in children terminating with a fulminating pneumonia, this case is reported in detail. Though existence of a specific rheumatic pulmonary lesion has been denied,[5] a characteristic pathologic picture which occurs only with rheumatic fever has been recognized.

The exact etiology of this pneumonitis is not known. It has been shown[2] to parallel the pulmonary histopathology seen in experimental and sulfonamide anaphylactic pneumonitis. Pathologically there have been described:[3-6]

1. Fibrinous exudates in the alveoli, which are sometimes transformed into hyaline pseudomembranes.
2. Necrosis of the alveolar walls.
3. Arteriolitis, which resembles that seen in periarteritis nodosa.
4. Focal inflammatory infiltrates, which are chiefly mononuclear.
5. Granulomas, or Masson bodies.

Clinically, two syndromes have occurred, fleeting, reversible pneumonia, without respiratory distress,[1-5] and suddenly developing, fulminating pneumonia, with severe dyspnea and cyanosis.[4-6] I have been able to collect eight cases of this severe rheumatic pneumonia from the literature (Table I). Case 4 is that of a three-year-old white girl who, after five attacks of febrile arthritis in two months, developed sudden dyspnea and a pneumonia.[5]

Case 7 was a five-year-old white boy who became anorexic and feverish and then developed pancarditis and fatal pneumonia and expired in ten days.[6] All of these reported cases were ultimately fatal, though Case 1 had three recurrences before death.

Radiologically the findings more closely resemble those of cardiac failure than those of pneumonia.[1-5]

Report of Case

Case 9.—S. D. was a six-year, five-month-old white girl who was seen because of a pruritic rash on the body which developed about April 8, 1950, and changed in character daily. She had never had any previous illness. There was no recent history of immunization or other injections. The father and mother were well. Six siblings were in good health. There was no family history of allergy or any chronic illness.

Examination disclosed a fairly well-nourished and well-developed child. There were large urticarial lesions generalized over the skin. There was no general glandular enlargement. Tonsils were red. Heart and lungs were normal. Liver, spleen, and kidneys were not palpable. Extremities were normal. She was given 400,000 units of procaine penicillin, 0.2 c.c. of 1:1000 adrenalin, and put on Elixir Benadryl, 2 drams three times daily.

She was again seen on April 18, when most of the urticaria had subsided. On May 9, she was seen with a temperature of 102° and acute tonsillitis. On May 11, she had developed a generalized rash. Examination disclosed an acutely ill, dyspneic, pale child who had large, angular, erythematous lesions of the body. There was no general glandular enlargement. Head and neck were normal. Eyes and ears normal. Tonsils were prominent. Heart rate was 160 with a gallop rhythm at the apex. No murmurs were heard. Lungs were clear. Liver, spleen and kidneys were not palpable. Genitalia were normal. Extremities normal. The impression at that time was rheumatic fever with erythema marginatum.

Accessory Clinical Findings.—Temperature was 105.° Electrocardiogram showed P-R interval 0.16; Q-T 0.32. P-1 was flat; QRS 1-3 low amplitude; T 2-3 depressed. Urine was normal. Hemoglobin 67 per cent; white blood cells 19,000; polymorphonuclear cells 76 per cent; lymphocytes 32 per cent. X-ray showed a dilated heart with possibly some pericardial effusion. She was started on penicillin and aureomycin.

On May 15 aspirin was begun in dosage of one grain per pound. Vitamin K, and ascorbic acid were also given.

On May 16 a systolic murmur was audible at the apex. The temperature varied from 99° to 103.6° By May 19 the heart rate had slowed to 100°, and she was not dyspneic. Bone marrow aspiration at this time showed only a granular cell hyperplasia. No L.E. cells were seen. Blood culture was negative. Tuberculin test was negative. On May 22 a presystolic murmur was heard at the apex. About May 22 she was taken out of oxygen, and from then on, even though she had some fever, she was able to lie flat in bed and was eating fairly well. On May 24 a diastolic murmur was first heard. She was given four small blood transfusions and seemed much improved. Sedimentation rate on May 26 was 45 mm. per hour.

On the morning of May 31, 1950, the ears and throat were normal, the heart tones were soft, and the systolic

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From the Departments of Pediatrics and Pathology, Quain and Ramstad Clinic, Bismarck, North Dakota.

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TABLE I. SUMMARIZED HISTORY OF CASES OF RHEUMATIC PNEUMONIA
Modified from Seldin, Kaplan, and Bunting[5], with additions.*

Case No.	Age	Sex	Previous Attacks of Active R.F.	Onset of R.F. to Onset of Pneumonia	Rapidity of Onset	Chill	Hacking Cough	Dyspnea	Pleurisy	Course	Result
1.	29	F	3	3½ months	++++	0	+	++++	+	15d	D
2.	16	M	2	16 days	++++	0	+	++++	+	12d	D
3.	13	F	1	4 days	++	0	+	+++	0	5d	D
4.	3	F	0	2 months	++++	0	+	++++	0	31d	D
5.	22	F	1	1 month	+++	+	+	+++++	+	40d	D
6.	16	M	1	10 weeks	+++	0	+	+++	0	12d	D
1.	23	F	1	8 months	+++	0	+	+++	+	8d	L
1.	25	F	2	12 months	+++	0	+	++++	0	7d	L
7.	5	M	0	4 days	++++	0	+	++++	0	10d	D
8.	19	F	1	1 month	+	++	+	++++	0	2d	D
9.	6	F	0	20 days	++++	0	++++	++++	?	4hr	D

*Cases 1 through 6—Seldin, Kaplan, and Bunting[5]
Case 7— Smith[6]
Case 8— Nittono and Hoshiyama[4]
Case 9— Kling and Tudor

and diastolic murmurs were decreased in intensity. The liver, spleen, and kidneys were not palpable. A few râles were heard in the hilar areas posteriorly. Temperature was 100.4 rectally. At 7:30 p.m. she was coughing continually and was cyanotic. At this time there was considerable consolidation of the right upper lobe with bronchophony and crepitant râles. She expired at 10:45 p.m.

Pathological Report.—The body was that of a somewhat undernourished but well-developed female child six years of age. There was no jaundice, petechiae, or superficial adenopathy. The chest and abdomen were opened in the usual manner. The entire bowel was a light gray color, only slightly distended, and there was no evidence of peritonitis. The liver weighed 1,050 grams and showed marked congestion about the central veins. The gall bladder was normal and the biliary ducts were patent. The pancreas appeared normal. The spleen weighed 85 grams and yielded abundant scrapings to the knife blade. Its markings appeared normal. Both adrenals appeared normal and showed no evidence of hemorrhage. The left kidney weighed 75 grams and the right kidney 80 grams. Their capsules stripped readily, leaving a smooth underlying surface. On section there was a well-demarcated cortex and medulla. The calices, pelves, and ureters appeared normal. The mucosa of the urinary bladder was normal in appearance. The uterus and uterine tubes were extremely small. The ovaries appeared normal.

Posteriorly, the right pleural cavity was obliterated by fibrinous adhesions and contained 40 c.c. of straw-colored fluid. The left pleural cavity contained adhesions in the apical region and 20 to 30 c.c. of straw-colored fluid was present. The right lung weighed 625 grams. The upper lobe was completely consolidated, and the middle and lower lobes, except for small areas at the respective inferior borders, were also completely consolidated. The lung appeared rubbery to the touch and on section appeared dark purple. The left lung weiged 440 grams and showed a patchy consolidation throughout both lobes. The pericardial cavity contained approximately 30 c.c. of straw-colored fluid, and fibrinous adhesions were present between the visceral and parietal pericardium over the apex and left ventricle. When the adhesions were separated, a typical shaggy "bread and butter" appearance resulted. The heart weighed 240 grams. The right auricle and ventricle were markedly dilated. The musculature of the left ventricle was somewhat hypertrophied. The mitral valve was plastered to the endocardium and superficially exhibited a number of small, hard ridges, the largest of which measured about 2 mm. in diameter. The valve appeared reddened and the chorda tendioneae were somewhat shortened. The other valves appeared normal. The thoracic and abdominal aorta was smooth and flexible.

Histologic Examination.—This revealed numerous Aschoff nodules in the interstitial myocardial tissue. There were also scattered foci of polymorphonuclear cells throughout the myocardium. The pericardium was diffusely infiltrated with inflammatory cells and the mesothelium was lacking. Sections of the mitral valve showed a diffuse round cell and polymorphonuclear cell infiltration. The lungs showed an intense exudative inflammatory reaction. Most of the alveoli were completely engorged with red blood cells and alveolar phagocytes, while a few were completely filled with polymorphonuclear cells. Many of the alveoli were filled with a fibrinos exudate which was often organized into fibrin plugs, and in some, hyaline pseudo-membranes were visible. The interstitial tissues contained infiltrates of mononuclear cells. A rather generalized arteriolitis was present. Occasional granulomatous foci were seen in the alveolar ducts. The interalveolar capillaries were intensely congested and the pleurae were

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OPERATING ROOM CHOLANGIOGRAMS

ARTHUR ZIEROLD, M.D.
Minneapolis, Minnesota

FOR many years surgeons have been plagued by postoperative biliary obstruction, due for the most part to stones overlooked and less often to biliary duct injury sustained in the course of operation. It has been almost everyone's embarrassing experience to note the occurrence of biliary colic and the development of jaundice after having but recently explored and presumably emptied the common duct. It has also been the misfortune of many of us to have removed the gall bladder and to have had the patient subsequently develop jaundice after having palpated and examined the common duct and satisfied ourselves that it contained no stone. Heretofore, the means at our disposal for examining the common duct before and after operation has entailed opening and exploring it mechanically with sounds, forceps and scoops of various sizes. This has been not an altogether satisfactory procedure. Stones have been missed, the ducts have been injured and the base has been laid for future stricture. Moreover, such exploration has been attended by a definitely increased risk.

Lahey, in a series of 2,000 personal cases, reports a mortality for cholecystectomy of 4 per cent. When the common duct is explored, this mortality increases to 13 per cent. Cole, reviewing many series of cases reported by various surgeons, reports an over-all mortality for cholecystectomy of 6.5 per cent and for common duct exploration of 10 per cent. It is obvious that such a mortality is too great to justify choledochotomy as a routine procedure. For this reason as well as the unfortunate complications aforementioned, an effort has been made to develop a method whereby the integrity of the common duct could be determined without increasing the mortality.

Examination of the biliary system by x-ray and radio-opaque materials is not new. As a postoperative procedure it has been employed for many years with variable degrees of satisfaction. In 1932, Mirizzi proposed that a cholangiogram be made on the operating table before closure of the abdominal wound. In 1936, Best and Hickem added their support to the idea. Following this with some slight modification, the results of such a procedure have been reported by a number of surgeons. Broadly stated, the indications for operating room cholangiograms exist if there is reason to suspect stones within the biliary tract or any distortion or interruption of its continuity. Inasmuch as every patient having stones in the gall bladder is a potential carrier of stones within the common duct, this statement really implies that every patient having an operation upon the biliary tract should be examined by a cholangiogram made on the operating table.

The cholangiogram, to be adequate, involves the co-operation of surgeon, anesthetist and roentgenologist. Each must realize what is to be attempted and must contribute intelligently his part in the procedure. The surgeon must so plan his approach that without loss of time he may provide a field easy of access for the roentgenologist after having given the anesthetist sufficient warning and time for preparation of the patient. The technique of performance is not difficult or involved but is exacting in its details. The patient is placed on the operating table with a tunnel sufficiently deep to hold a cassette beneath the region of the gall bladder. A preliminary film is exposed to check the location and determine the necessary time of exposure. When this has been satisfactorily determined, the abdomen is opened in the usual manner. It is the practice of some operators to expose the common duct at once and open it sufficiently wide to permit the insertion of a T-tube, whereby the cholangiogram is made. As this procedure at once accepts the increased risk of choledochotomy, it does not appear to be justified as a routine procedure. Furthermore, I do not believe that it is necssary in order to obtain a satisfactory cholangiogram. Several have attempted to avoid opening the common duct by injecting the radiopaque substance through a needle. In my hands this has proved most unsatisfactory. The needle, if sufficiently large to complete the procedure satisfactorily, often injures the common duct and permits leakage after withdrawal. This not only at times obscures the cholangiogram but may invite complication from escape of bile. If a fine needle is used, it is difficult

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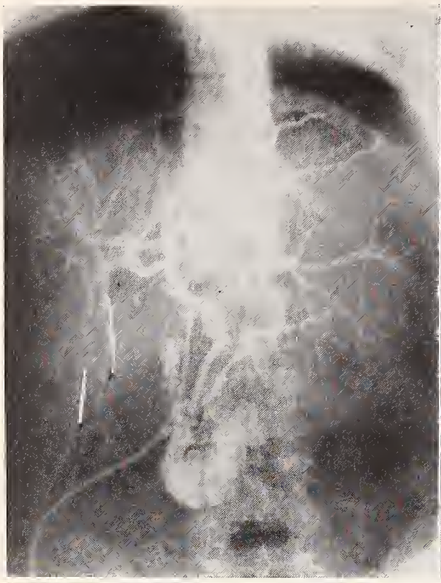

Fig. 1. Normal cholangiogram. Normal biliary tree and normal pancreatic duct.

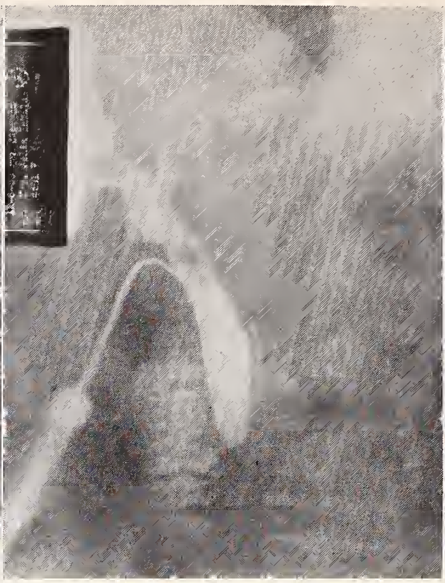

Fig. 2. Abnormal cholangiogram. Dilated common duct and multiple retained stones.

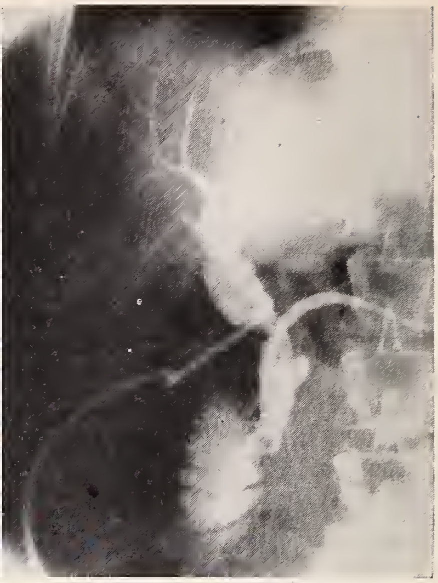

Fig. 3. Abnormal cholangiogram. Dilated common duct with stones in ampulla. Dilated pancreatic duct.

to aspirate and examine the bile and also difficult to determine the intraductal pressure during injection.

It is our practice first to remove the gall bladder and, after carefully isolating the cystic duct, to cut the duct, leaving it about 1 inch in length. A small probe is then introduced to determine its patency. At times a small retained cystic duct stone can be identified. At other times it will be found that the Heisterian folds are difficult to pass and constitute an actual obstruction to injection. Once the cystic duct has been sufficiently opened, a soft silver cannula 1 or 2 millimeters in diameter is inserted and tied firmly with catgut. The cannula must be inserted carefully because of the danger of perforation of the thin cystic duct or common duct wall. It is safer and quite as satisfactory to insert the cannula only into the cystic duct and not allow it to enter the common duct itself.

The earlier attempts at cholangiography were made with lipiodol, but because of its viscosity and tendency to entrapment of air bubbles, this material was discarded. Thorotrast was also employed at one time, but it was found that leakage into the peritoneal cavity of even small amounts results in a chemical peritonitis of serious nature. The medium commonly employed at present is one of the iodine compounds used in intravenous urograms, such as diodrast or iopax. The material is aqueous, non-irritating and sufficiently fluid to enter the small biliary radicles without excessive pressure. In the normal biliary tree the injected substance, diodrast or iopax, may be used in full strength. If, however, the duct is enlarged, the material should be diluted one-half so that the density of the material does not obscure the defect caused by a small stone.

As before noted, a small cannula is tied in the long cystic duct and attached to this is a 20 c.c. Luer syringe with rubber tubing and connector 12 inches in length. The syringe is filled with normal saline, and the system is cleared of air bubbles and then connected. Twenty to 30 c.c. of saline is then used to irrigate the biliary tract. The syringe is then filled with 20 c.c. of diodrast, which is injected slowly. If the injection is made too rapidly and the common duct is distended too suddenly, sphincter spasm will result and frequently the patient will be so disturbed as to require deeper anesthesia. If the patient is under pentothal anesthesia, too rapid injection may cause laryngospasm. Toward the end of the injection, all metallic substances are removed from the field, which is then covered with a protecting drape, and the x-ray apparatus is wheeled in position. During the period of injection, the anesthetist has by means of oxygen and forced respiration induced a state of apnea. When advised by the surgeon that injection is complete, the anesthetist stops the respiratory motion. The signal is given to the roentgenologist who immediately exposes the film for a period ranging from ½ to 1 second. In the average case the readings are as follows:

80 kv, 40 ma, 30 inches distance with cone attached, .7 second time. The plate is then removed from the tunnel and a second plate inserted. Immediately a second exposure is made in the same manner as the first. This permits further diffusion of the dye and reduces the percentage of error due to motion. The films are developed immediately and examined in the operating room. In the event that they are not sufficiently clear or that the proper field has not been included, the procedure is repeated. If the cholangiogram is normal, the cystic duct is tied and the excessive portion is removed together with the cannula. If, on the other hand, the cholangiogram presents evidence of abnormality, the cannula is removed and the duct tied in the same manner, and the common duct is then exposed for exploration. At the end of exploration and the removal of any obstructing material, a T-tube is placed in the common duct and sutured in place with 5-0 chromic catgut. The tube is then connected with a syringe filled with saline and again the biliary tract is irrigated. Following thorough irrigation, the biliary tract is again injected with diodrast and x-ray films are made as previously. When the films show no further evidence of retained stone and when the dye passes readily and can be demonstrated in the duodenum, the wound is closed and the operation considered complete.

On occasion, particularly after trauma to the duct in the removal of a stone, the final cholangiogram made through the T-tube will show evidence of sphincter spasm which may temporarily obstruct the flow into the duodenum. If this occurs on the preliminary cholangiogram or on the final film, amyl nitrite is administered by inhalation. This relaxes the spasm and permits the diodrast to pass freely into the duodenum. In certain cases it may be desirable to demonstrate the pancreatic duct and its relation to the common duct. If this does not occur in the usual course of injection, it may be obtained by following the procedure of Doubilet.

Summary

In operations upon the biliary tract it is desirable to know whether or not stones are present in the common duct. An operating room cholangigram provides this information without choledochotomy and without increased risk.

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RHEUMATIC PNEUMONIA

(Continued from Page 438)

infiltrated with inflammatory cells. No bacteria were found on the lung on direct smear. The spleen was markedly congested and showed a definite lymphoid hyperplasia. The kidneys and adrenals appeared normal. The liver showed moderate central lobular congestion.

Cause of Death.—(1) Acute fulminating exudative pneumonia—etiology unknown. (2) Acute rheumatic fever.

Anatomical Diagnosis.—(1) Rheumatic pericarditis, myocarditis, and valvulitis. (2) Pericardial effusion. (3) Acute fulminating exudative pneumonia—etiology unknown (rheumatic ?).

Summary

An acute fulminating lobar pneumonia which occurred twenty days after the onset of rheumatic heart disease in a six-and-a-half-year-old white girl has been reported. It is theorized that this acute fulminating exudative pneumonia was rheumatic in origin.

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PRACTICAL POINTS IN ALLERGY

JOSEPH H. SHAFFER, M.D.
Detroit, Michigan

THERE are probably no individuals quite so miserable, unhappy and chronically ill as those who suffer from major allergic conditions, and again, there are no patients more grateful when afforded some measure of relief. With diligent study of the problems, and with application of common sense in setting up a plan for treatment and control of troublesome factors, relief from symptoms is an attainable objective.

Regardless of our individual interests in medicine, it would seem that we, as physicians, should recognize an allergic condition and be ready with some basic plan of procedure when such an individual enters our office. Notwithstanding the numerous press releases to the public heralding new "cures" for allergy, there is no short-cut we may take in controlling allergic conditions. It is true that the many new "allergy" drugs materially assist in the symptomatic treatment of such conditions, but this is not enough. We must concern ourselves with measures which strike at the problem from a physiological and immunological point of view.

In our study of patients, we should (1) look for symptoms and history data pointing to a diagnosis of allergy, (2) proceed in an orderly manner with study and investigation, and (3) develop a logical and simplified, yet effective therapeutic plan. With some practice, an interview with an allergy patient need not be lengthy; time thus spent, however, in my opinion, is the most profitable step we may take in our attempt at getting at the underlying causes. The problem can be fairly well crystallized at this point and before the patient is ushered into a testing booth. Physical examination and protein tests, selected with the thought in mind of verifying our clinical opinion, help us to put "teeth" into our diagnosis. Symptoms present the year around set off a chain of thought and action along one line, while the presence of sharply delineated seasonal symptoms only narrows the scope of the problem greatly. Since allergic changes may affect every tissue in the body at some time or another, symptoms may be numerous and variable. In addition to such well-known allergic conditions as hay fever, nasal allergy, bronchial asthma, eczema, urticaria, angioneurotic edema, and drug allergy, we now have allergy under consideration as playing a prominent role in arthritis, periarteritis nodosa, ulcerative colitis, pulmonary tuberculosis, rheumatic fever and headaches.

For the past two years we have been successful in reducing the incidence of the common respiratory infections. Antihistamine drugs administered early often effectively control coryza, sneezing, and edema of the upper respiratory tract mucosa, and may abort the process completely. Additional therapy with bacterial vaccines, dust and mold extracts has been most helpful; patients who, prior to treatment, experienced three to five respiratory infections during winter months have been kept entirely free of the common cold. This experience lends credence to current opinion that respiratory infections are superimposed upon allergic tissues, or that allergy, at a subclinical level, is often present in the cold-susceptible individual.

Reactions to drugs, chemicals and antibiotics are encountered almost daily in our practice. Perhaps we, as physicians, are unwittingly sensitizing a large cross-section of the population. It is not uncommon to treat a scratchy throat with penicillin, only to have our patient hospitalized for a week or so because of a severe reaction to that drug. Almost any of the medications we use in our every day practice are potential sensitizers of the patient. Complications and untoward reactions may cause conditions far more serious than the original ailment under treatment. Oral penicillin preparations commonly cause reactions, while aqueous intramuscular preparations are hardly ever at fault.

We cannot stop with an analysis of the allergy problem alone but must proceed with an evaluation of the total health status of the individual. We are doomed to failure before we start protein desensitization, unless we give proper corrective consideration to such problems as malnutrition, anemia, hypothyroidism, nervousness and frank foci of infection. Just as important as is exposure

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Doctor Shaffer is Physician-in-charge, Allergy Clinic, Henry Ford Hospital, Detroit, Michigan.

to antigenic substances are the conditions that lead to emotional instability, unhappiness or worry. Observations during the pollen season last year convinced us that patients experienced marked exacerbation of symptoms, independent of the pollen level, when there was a sudden drop in temperature, when the barometer was changing, or when the humidity soared into the nineties. Such conditions, however, are beyond our control.

Changes in environment are most important and should always be considered as a possibility. Are there new rugs, furnishings, pets, insecticides, chemicals, hobbies, clothes, cosmetics, or has a remodeling job been done on the home? Introduction of rock wool insulation into the walls of a cottage, with resultant condensation and mold, caused illness in one of our patients. He could sleep peacefully on his back porch, but experienced severe asthma when in the house more than fifteen minutes. Another patient could sleep at the home of his sister, while thirty minutes in his own home was followed by severe asthma; the problem was one of a moldy basement.

Next to a well-taken history, nothing is more valuable than a thorough examination, which may require assistance from one or several specialists in the various fields of medicine. X-rays must be considered as important in the study of the asthmatic chest, and pathology in the paranasal sinuses should not be overlooked. Serious headaches should be studied by the neurologist. The general practitioner is in an enviable position—it is he who knows the family, the patient and his problems, and it is to him that the patient first turns for help.

Protein tests enjoy entirely too much popularity, in my opinion, as a method of diagnosing an allergic condition. When used as is any laboratory procedure to confirm our clinical suspicions, they may prove quite helpful, but when made the sole basis for our diagnosis, they may be highly misleading. If they confirm our clinical impressions, accept the results; if they do not make sense and do not fit the picture, it is best to toss them aside.

Mass testing with hundreds of substances is unwarranted and is less desirable than selecting a few well-chosen substances which are deemed important from our review of the history of the case. A high percentage of positive tests on a single test subject is most unusual and should warn us that *dermatographia* (irritability of the capillary bed of the skin) and *not allergy* is present. Control tests are always positive when applied to such a skin and should always be applied. Draw your fingernail or a blunt instrument across the skin and you will note the appearance of a red wheal.

Safety is necessary in the testing rooms. We have made it a rule to apply scratch tests initially, especially when testing individuals in whom we suspect a high degree of sensitivity, when testing children, and adults who are in an extremely weakened physical condition. When necessary we retest with intradermals. Block testing is helpful in avoiding the constitutional reactions which are always a possible source of danger. Although tests may be applied by a nurse, or well-trained technician, the physician should make frequent observations during the test period and make all interpretations.

Every allergist has his favorite list of foods that he considers troublesome. Rowe considers food to be the most troublesome and leading causative factor in all forms of allergy. We cannot duplicate his experiences in our large and busy allergy clinic. Allergists, by excluding numerous basic foods from diets, are large contributors to the malnourished condition of many patients. We should think carefully and have a sound basis for our action before we make such limitations in any diet.

This year, as in the past, patients have experienced aggravation of hay fever symptoms when they are partaking abundantly of freshly harvested fruits and vegetables; at other seasons of the year such foods may be eaten with impunity. Uncooked fresh fruits and vegetables are high in antigenic quality. Cooking remedies this condition; it is well known that thorough boiling, or substitution of soy-bean milk, often is helpful in handling the milk-sensitive individual. It is best to serve moderate helpings and to rotate items in the diet.

Thousands of individuals suffer from hay fever. During the past summer pollination was unusually heavy, and sufferers were numerous in the untreated group. We, as physicians, should advise our patients that there is no better or more reliable method than pollen extract therapy. It is true that the ever-growing number of antihistamine drugs are helpful in the control of symptoms but will not furnish adequate protection for the highly sensitive individual. We should remember that as ragweed pollen disappears in late September, our patients may continue to have symptoms. In this group we should suspect dusts, *Hormodendrum* and *Alternaria* of the mold groups as added troublesome factors.

Hay fever is caused by the pollens of trees, grasses, and ragweed; patients sensitive to all may have symptoms from April through September. Such pollens are abundant and depend upon the wind for distribution, while flowers with their gay colors attract bees and insects, which spread the pollen about. Florists and funeral directors, however, may develop a high degree of sensitivity, but for practical purposes we need not consider flowers as creating a major problem in the control of hay fever. "Rose fever" is most often found to be due to tree and grass pollens. Goldenrod may be unjustly accused of causing symptoms which are in reality due to the drab and unnoticed ragweed in the same vicinity. We should know that heavy pollen counts are encountered in the nearby states of Ohio, Indiana and Illinois, and that certain areas in Michigan are extremely low; such localities afford a haven of refuge for our patients.

Pollination charts compiled by Durham and Tufts have been most helpful to allergists. From such charts we learn that trees begin to pollinate in mid-March and April, grasses in May, and ragweed in late July.

Spring Hay Fever

Pollens from practically all trees may cause hay fever. In this area poplar, oak, elm and maple are chief offenders. Symptoms as a rule are usually mild and may easily be controlled with symptomatic measures. There are patients, however, who are extremely sensitized to these pollens; they should receive pollen extract therapy, beginning not later than mid-January.

Early Hay Fever

Grasses pollinate sufficiently to cause symptoms from early May through July. Chief offenders in this area are timothy, June grass, Orchard grass and Red Top; they are all found in the usual lawn grass mixtures for sale at the hardware store. In our treatment mixture we include extracts of the pollens to which our patients show a wheal and pseudopod reaction on skin testing. Such injections should be started not later than mid-March.

Late Hay Fever

Giant ragweed pollination begins about July 20 and becomes clinically important in mid-August. Low ragweed pollination reaches a peak about mid-September. We start patients on mixed ragweed extract not later than mid-May.

We favor the preseasonal treatment plan as mentioned above, and use it in preference to the perennial and co-seasonal. We start with dilute mixtures of extract and gradually increase dosage and strength as treatment progresses, ever on the lookout for overdosage as manifested by minor intolerances or the more serious constitutional reactions. We give pollen extract subcutaneously once a week. We ask our patients to remain in the waiting room for twenty minutes following injections; should an untoward reaction occur, they are then readily available for treatment. Should mild reactions occur, we give one of the antihistamines; should the reaction be more serious, a tourniquet is applied above the site of injection, and epinephrine (3 minims of 1:1000) is injected into the opposite arm.

When patients report for treatment, they are questioned closely regarding possible delayed reactions from the previous injection. When necessary, adjustments of dosage levels are made. Since it is impossible to predict accurately any dosage schedule which will fall within the tolerance level of the patient, and since treatment must be highly individualized, it is unwise and dangerous for doctors not to personally supervise pollen extract therapy.

Perennial Vasomotor Rhinitis

At this particuular season we see many patients with exacerbations of year-round symptoms such as stuffy nose, post-nasal drip, sinusitis, and attacks of sneezing. Such symptoms are due to nasal allergy and are often associated with a high degree of susceptibility to the common cold. Patients in this group are usually found to be sensitive to feathers, dusts, furniture stuffing, lint from carpeting, molds, and fumes from chemicals and insecticides. Prolonged use of nose drops may be an aggravating factor; we do not prescribe them. Metabolic changes in hypothyroidism and pregnancy may aggravate the nasal condition, as will highly seasoned foods, chocolate, eggs, milk, and alcoholic beverages. This group of patients is indeed most difficult to treat, and requires patience, perseverance and resourcefulness on the part of the patient as well as the doctor. Treatment includes strict allergic cleanliness, hyposensitization therapy with bacterial vaccines, dust and mold extracts. Antihistamines may materially assist in temporary control of symptoms.

Bronchial Asthma

Our basic plan of therapy for the asthmatic patient is five-fold. It calls for: (1) relief of bronchospasm (bronchospasmolytic drugs); (2) evacuation of mucus from the bronchial tree (bronchoscopic suction and lavage, use of iodides followed by postural drainage); (3) treatment of infection (penicillin, streptomycin, aureomycin, chloromycetin); (4) control of allergic factors (hyposensitization with dust and mold extracts, bacterial vaccines, allergic cleanliness, and protective environment); and (5) general supportive measures deemed necessary to correct anoxia, dehydration and malnutrition.

With such a comprehensive treatment plan it is obvious, I believe, why we are unsuccessful in the treatment of bronchial asthma, if we rely solely on one of the newer "miracle drugs" for results.

The Asthmatic Emergency.—The most frequent emergency condition encountered in our clinic is the patient with acute asthma. We have found it necessary to develop a dependable treatment routine adaptable to office practice. Many patients are promptly relieved, and are thus enabled to carry on with out-patient therapy; hospitalization is thus reserved for the desperately ill patient whose asthma may be complicated by cor pulmonale, severe peripheral vasomotor collapse, acute infection, or severe anoxia, dehydration and malnutrition.

Office Emergency Treatment.—

1. Triple intravenous therapy.—Glucose 100 c.c. in 5% concentration, in water; Aminophyllin Gr. 3¾; Sodium iodide 100 c.c. in 10% concentration. Mix together in cylinder and give *slowly* over twenty-minute period.

2. Epinephrine.—Give 2 to 3 minims (1-1000) "H" while the intravenous is running. Give hypodermically.

3. Penicillin.—Give aqueous intramuscular, 300,000 to 400,000 units, if there is a history of recent infection, purulent sputum, fever or leukocytosis. (Repeat 1, 2 and 3 daily for three or four days and then twice weekly.)

4. Search for precipitating factors.—While the patient is resting for twenty to thirty minutes after the above treatment, elicit data for the history. Avoid basing your treatment plan on drugs and medications previously tried and found ineffective. Antihistamines may be quite helpful in treating the asthmatic child but often aggravate asthma in the adult. We do not use antihistamines in the adult asthmatic patient. Iodides are most helpful and are necessary to thin the thick mucus which plugs the bronchial tree. Get rid of this mucus and you are well on your way to therapeutic success.

5. Medications for continuing treatment at home. (a) Bronchospasmolytic drugs (select one): Nethaphyl—one capsule three or four times daily or one capsule at onset of wheezing. Quadronal—one tablet three times daily or one tablet at onset of wheezing. Amesec—one tablet or capsule three or four times daily or one tablet at onset of wheezing. (b) In addition to above start patient on Hydryllin one tablet after each meal and one at bedtime. (c) Start an iodide preparation: Syrup of Calcidrine—one teaspoonful after each meal or Potassium iodide enseals—one after breakfast and supper. (d) Asthma Mixture (HFH Formulary): This medication has proven effective over a period of many years, and is quite helpful by itself or may be used in conjunction with any combination of the medications listed above.

ASTHMA MIXTURE

Tincture belladonna	10.0
Ephedrine sulphate (3%)	30.0
Codeine sulphate	0.6
Chloral hydrate	15.0
Syrup of hydriodic acid q. s. ad.	240.0

Sig.: One teaspoonful every four to six hours as necessary for asthma.

Long Range Treatment Program.—After the acute emergency condition has been brought under control, we must next consider, and institute a long range therapeutic program. Suggestions listed below may prove quite helpful.

1. Culture the sputum.

   Lack of response to adequate penicillin therapy may be due to Gram-negative organisms. If so substitute Aureomycin or Chloromycetin for penicillin.

   Chloromycetin—initial dose 1 gram, then ½ gram every six hours for five to seven days.

2. Protein test survey.

   Delay protein testing for several weeks after status asthmaticus has cleared. Use information gained from protein testing, along with facts as elicited in the history, to set up hyposensitization therapy with pollen extracts, dust and mold extracts, and bacterial vaccines.

3. Allergic cleanliness.

   Cover feather pillows with plastic or silk dust-proof covers, discard tufted bead spreads, eliminate pets from the living quarters, eliminate the mold problem in the basement, protect the housewife or the working man from dusts insofar as possible (masks, filters for hot air ducts, sub-

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History of Medicine In Minnesota

MEDICINE AND ITS PRACTITIONERS IN OLMSTED COUNTY PRIOR TO 1900

NORA H. GUTHREY
Rochester, Minnesota

(Continued from the April issue.)

Isaac Hall Orcutt (1847-1912), of Dodge County, Minnesota, was a practitioner of medicine in Byron, Olmsted County, from March, 1876, to January, 1883, and from 1893 until his death was well known in other parts of southern Minnesota. He commonly signed his name "I. H. Orcutt" and was known as "Dr. Hall Orcutt." He was a member of a family that for many decades has been established in Dodge and Olmsted Counties.

Born on June 7, 1847, near Westmoreland, Oneida County, New York, Isaac Hall Orcutt was the son of Isaac Orcutt and Julia A. Knapp Orcutt. By a previous marriage, about 1828, Isaac Orcutt had three children, Elizabeth Antoinette, George and Charles. By the second marriage, about 1835, there were eight children: Theodore de Martigne, Cola di Rienzi, Peter Ezra, Sheldon Read (for many years a carpenter in Dodge Center), Edward Henry, Levera Jane, Isaac Hall, and Alfred Stoddard (a Baptist preacher, who died in Luverne, Minnesota, in 1886). With his wife and children Isaac Orcutt in 1848 left New York for Ohio. From Ohio the group emigrated to Iowa in 1851, and from Iowa to Minnesota in 1855, settling on a farm in Milton Township, Dodge County; in 1863 they moved a few miles onto land in Concord Township. They traveled to Minnesota in two wagons drawn by oxen, and forded the Zumbro River at Rochester, when the settlement was represented by one log building, which served as inn, store, living quarters and blacksmith shop.

Isaac Hall Orcutt received his early education at local district schools; in 1866 he enrolled at the Groveland Seminary at Wasioja, and on completion of his course returned home to teach the school of his boyhood in Concord Township. It is said that in 1872 he began the study of medicine, doubtless under a local physician as preceptor, although record of such study does not remain. On March 21, 1876, he was graduated with the degree of doctor of medicine from the Chicago Medical College and in the same month began the practice of medicine in Byron. Dr. S. B. Kendall had been established there many years; Dr. W. H. Willson, of brief residence, came at the same time as Dr. Orcutt. In April, 1879, Dr. Orcutt went to the University of Pennsylvania for a course in natural sciences, and during the latter part of this absence Dr. William M. Dodd, a local boy of Kalmar Township, Olmsted County, a graduate of the Chicago Medical College (in March, 1880), carried his practice for a few months. Dr. Orcutt returned in June, 1880, with his degree of doctor of philosophy and resumed his practice; in March, 1882, he took into partnership Dr. Carlos R. Keyes, a graduate (1881) of the medical department of the University of Vermont, who had arrived in Byron a few weeks earlier. Dr. Orcutt, because of ill health, was then giving up his professional ride and restricting himself to office practice. In January, 1883, he retired to a farm between Dodge Center and West Concord.

Early in 1884, shortly after the death of his wife, Dr. Orcutt removed to Brookings, Brookings County, Dakota Territory, where he remained until 1893. For about two years a practicing physician (registered in the territory on April 28, 1886), in June, 1885, he was appointed to the faculty of the Dakota Agricultural College, at Brookings, as professor of natural sciences and curator of the college museum; there is record of his many field expeditions to collect botanical and geological specimens for the museum. His duties were comprehensive: He was college physician; from 1887 to 1891 he was professor of zoology, entomology and physiology; from 1888, in addition to his professorship, he was entomologist to the South Dakota Experiment Station at Brookings; from 1891 to late 1892, professor of zoology, geology and physiology. Notices have been observed of his lectures on health to the students, "giving them many valuable prescriptions"; on evolution; on entomology and the destruction of insects. In November, 1892, in the course of a political move within the college, it is said, Dr. Orcutt and five other professors were removed from the faculty, in the face of bitter protest of the entire student body, who sent a written vote of confidence to the deposed professors; many of the indignant students transferred to other colleges.

From early years a staunch Baptist, worker in the Sunday school, lecturer and preacher, Dr. Orcutt was outstandingly a prohibitionist and a scientific investigator of the ill effects of alcohol and tobacco on the human nervous system. For a few months after leaving the Dakota Agricultural College he continued his special studies at Brookings but early in 1893 removed to Owatonna, Steele County, Minnesota. There he brought out, in 1894, addressed to the public, his little book, *Microbes and Men,* the outgrowth of his special work, in the preparation of which he had been assisted by certain members of the faculty and the student body at Brookings, and by the Reverend S. A. McKay, of Owatonna. The frontispiece is a likeness of Dr. Orcutt, shown operating his sphygmograph, an instrument used in his many experiments and tests. In 1896 Dr. Orcutt removed to Northfield, Rice County, where he spent the remainder of his life, continuing his researches on alcohol and tobacco and lecturing on his findings before the Women's Christian Temperance Union and other interested groups in various towns of Minnesota and Iowa. For several years he served on the city school board of Northfield and also was engaged in overseeing properties in different parts of the state.

Isaac H. Orcutt was first married on May 23, 1876, to Emma A. Fairbanks, of Dodge Center, one of the two daughters of D. C. Fairbanks, farmer and grain and cattle buyer who had large holdings of land in the region of Dodge Center. Dr. and Mrs. Orcutt had one child, Allie Julia, named for Mrs. Orcutt's sister. Emma Fairbanks Orcutt died in Dodge Center on January 28, 1884, in her twenty-ninth year. In 1886 at Brookings, South Dakota, Dr. Orcutt was married to Carrie Ross, an undergraduate student at the college, a daughter of the Reverend Walter Ross, a Baptist minister in a near-by Dakota village; Mrs. Orcutt continued her college work and was graduated. Of this marriage there was one son, Walter Alfred.

Dr. I. H. Orcutt died at his home in Northfield on October 7, 1912, in his sixty-sixth year, of Bright's disease, survived by his wife, his daughter and his son; burial was in Oaklawn Cemetery, Northfield. Mrs. Orcutt died in Tampa, Florida, in 1928, where she had been making her home with her stepdaughter, the wife of

Captain George Stanley Smitzes. Mrs. Smitzes, a former high school teacher, is a graduate of Carleton College and of the Minneapolis School of Music, and has done postgraduate work at the state universities of Wisconsin and Minnesota. Captain Smitzes, veteran of World War I, served in World War II as a duty officer at the Moore General Hospital at Swannanoa, North Carolina. Walter Alfred Orcutt, graduate of Carleton College and teacher of natural sciences at various colleges and universities, died in 1917, within two weeks of graduation from the medical department of Western Reserve University; his son, William Hall Orcutt, of Chicago, born in 1914, a graduate of the University of Chicago and Rush Medical College (1938), during World War II was a captain in the Medical Corps of the Army of the United States, in the Pacific area. Dr. W. H. Orcutt (1946) has a son, Thomas Orcutt, and a daughter.

C. (O. ?) M. Palmer, said to have been a graduate of the Chicago Homeopathic Medical College, a physician and surgeon of nine years' experience, came to Rochester, Minnesota, about December 1, 1875, from St. Charles, Winona County, where he had been in practice four years. In Rochester he opened an office in the Leland Block on Broadway and boarded at the Cook House. The *Rochester Post* of December 25, 1875, announced that Dr. Palmer had removed to Blue Earth City, Minnesota. In the *History of Medicine in Winona County* (1940) it was stated that about 1882 a Dr. Palmer owned a farm in that county.

Martin Thompson Perrine (1817-1900), an eclectic practitioner, was the first resident physician (1855) in Rochester, Minnesota, and the second physician in Olmsted County. It is believed that Dr. Hector Galloway, at Oronoco, preceded him in the county by a few months.

Martin T. Perrine, son of William Perrine, who was a descendant of David Perrin (*David Perrin, The Huguenot, and His Descendants,* 1665-1910, by Howland D. Perrine), emigrated from Pennsylvania into Ohio probably in the eighteen forties. His daughter Minnie, only child of his first marriage, was born in Meadville, Pennsylvania, on July 15, 1840. According to records of the Perrine family, there were two daughters of a second marriage: Jennie, who was married to Ebenezer B. Park, of Boston, and who later lived at Osage Mission, Kansas; and Hattie, who twice married, first to Carlton Shepard and second to A. G. Wallace.

From Ohio Dr. Perrine came with his family to Rochester, Minnesota, arriving in May, 1855. A note appears that in 1858 his office was at the Bell and Fisher Drug store. Minnie Perrine was one of the first pupils, in the summer of 1856, at Rochester's first schoolhouse, a little log building across the Zumbro River in the eastern part of the settlement.

In the autumn of 1860, because of ill health, Dr. Perrine removed to Lake City, Wabasha County, where he entered business in a drug and variety store with his brother, Dr. L. C. Perrine, like himself an eclectic practitioner. It is doubtful that Dr. M. T. Perrine thereafter practiced medicine in Minnesota. In an undetermined year he removed from Lake City to Osage Mission, Kansas, to make his home with his daughter, Mrs. Park. He died at her home (the place of death is sometimes given Chanute, Kansas) on October 13, 1900.

Minnie Perrine was married in Lake City on October 9, 1860, to Franklin A. Poole, of Rochester. Mr. Poole, of English descent, was born in Troy, Geauga County, Ohio, in 1834, and came to Rochester, Minnesota, in 1857 from Dubuque, Iowa. Most of his adult life he was a merchant and druggist. In 1874 he went into business in Red Wing but in 1880 returned to Rochester, where for many years he was a druggist. Mr. and Mrs. Poole had one child, Alice, who died in infancy; Minnie Perrine Poole died in Rochester in December, 1908.

Robert McEwen Phelps (1858-1928), fifth appointee, in 1885, to the staff of the Second Minnesota Hospital for Insane, at Rochester, Olmsted County, gave forty years of service to the state, nearly twenty-eight years in Rochester and nearly thirteen years in St. Peter, a career of quiet influence and distinction.

Born at Ripon, Wisconsin, on March 15, 1858, Robert McEwen Phelps was the eldest of the three children of Abel McEwen Phelps and Pamelia Church Brockway Phelps, who were natives respectively of Norfolk, Connecticut, and Rochester, New York. Darius Phelps, father of Abel, a farmer as was the son, emigrated from Connecticut to Ohio in the early eighteen thirties and thence to Wisconsin.

Robert McE. Phelps received his early education in the public schools of Ripon and at Ripon College, from which he was graduated in 1880. Having decided on the study of medicine, in order to earn the money for his medical course he taught country school for one year after graduation from Ripon College and then worked with civil engineers for a railroad construction company in Wisconsin and Michigan, and also in Canada, on the first railroad built from Winnipeg to Swift Current. Thereafter he began his medical work under a preceptor, Dr. Rogers, of Ripon, and in 1883 entered Rush Medical College. He was graduated from Rush with the degree of doctor of medicine in March, 1885, and in the same month became Second Assistant Physician at the state hospital in Rochester, the first to hold that position; since 1881 the professional staff had consisted of the medical superintendent (Dr. J. E. Bowers) and one assistant physician.

Ethical, kindly and considerate in all relationships, Dr. Phelps won respect and esteem. He was a member of the Presbyterian Church, and a Republican. His recreational hobby from early years was amateur outdoor photography. Although a worker for the common good, he did not take part in civic affairs or hold public office. His deep interest in the welfare of the insane and his devotion to the art and science of psychiatric medicine filled and shaped his life; he kept abreast of advances in his field and for the good of the work applied his unusual literary talent and teaching ability.

His first four years in Rochester Dr. Phelps served as second assistant physician on the hospital staff. After the reorganization of the hospital in 1889 he became first assistant physician and the next year assistant superintendent. In 1889 there was established at the hospital a training school for attendants, in which he was influential, and in the autumn of 1890, when Dr. A. F. Kilbourne, the superintendent, approved the establishment of a training school for nurses at the hospital, Dr. Phelps became the moving spirit in the undertaking; the purpose was to train nurses for employment in the hospital and ultimately to supply nurses to other hospitals for insane. With the aid of Dr. Sara V. Linton and Dr. Nathan M. Baker, both of whom had joined the hospital staff in October, 1889, Dr. Phelps brought the training school to great success and usefulness, which continued many years. In November, 1890, the medical staff of the hospital, inspired and headed by Dr. Phelps, founded *The Bulletin,* the quarterly "psychiatric bulletin" of which M. K. Amdur wrote in 1941. Although short-lived, this publication was a noteworthy innovation and in it were presented many excellent papers by Dr. Phelps and his colleagues and by certain able psychiatrists from elsewhere in the state.

In the early nineties, in addition to other writings, for medical societies and official journals, Dr. Phelps published three graded text books (Rochester State Hospital Press) for use in the training school, books which had wide distribution in other state hospital training schools also: in 1893, *A Junior Text-Book on Nursing in Bodily and Mental Sickness;* in 1894, with his wife, Sara V. Linton Phelps, *A Senior Text-Book on Nursing in Bodily and Mental Diseases;* and in 1895, *A Text-Book on Nursing in Bodily and Mental Diseases.* During the Rochester period he contributed a weekly column, "The Saturday Philosopher," to the *Rochester Post.*

Throughout his career Dr. Phelps was active in medical societies: the Olmsted County Medical Society, from 1885 (its president, 1891); the Minnesota State Medical Society, from 1889; the Southern Minnesota Medical Association (a founder, 1892); and the American Medical Association. Among the special societies he was a member of the American Neurological Association and the American Medico-Psychological Association (once its president); the second of these groups, about 1921, became the American Psychiatric Association. After leaving Rochester for St. Peter, in 1912, Dr. Phelps was for many years active in the Nicollet-Le Sueur County Medical Society.

Robert McEwen Phelps and Sara Virginia Linton were married in Minneapolis on June 1, 1892. Dr. Linton Phelps continued as an assistant physician at the state hospital until her resignation in February, 1898. Three children were born to Dr. and Mrs. Phelps: Laura Linton, Isabella Brockway and Frances, the last of whom died in October, 1898, aged eleven months. In the spring of 1898 Dr. Linton Phelps contracted pulmonary tuberculosis, which caused her death five years later. Dr. Phelps because of his wife's illness was released from his hospital position for some two years and a half, beginning in June, 1899. After resumption of his work as assistant superintendent he remained at the Rochester State Hospital until September, 1912, when he became superintendent of the Minnesota Hospital for Insane, at St. Peter, succeeding Dr. H. A. Tomlinson. This superintendency Dr. Phelps filled ably until he resigned, because of failing health, on October 1, 1925. Thereafter he made his home with his daughter, Laura L. Phelps (Mrs. Charles Willard) Cross, of Faribault.

Dr. Robert McE. Phelps died at Faribault on October 27, 1928, after a terminal illness of four days, from chronic myocardial degeneration of long standing. His grave is beside that of his wife in Oakwood Cemetery, Rochester. Dr. Phelps was survived by his daughters, Mrs. Cross, of Faribault, and Isabella B. Phelps (Mrs. Floyd B.) Johnson, of St. Peter, and by seven grandchildren in the two families; by his sister, Isabella Phelps (Mrs. Frank E.) Gooding, of Rochester (died, 1944), and a niece, Isabella Gooding (since married to Parker D. Sanders, of Redwood Falls); and his brother, James B. Phelps, of Rochester. After the death of Mrs. Gooding, James B. Phelps made his home with Mr. and Mrs. Sanders; he died in Redwood Falls in March, 1945.

Sara Virginia Linton (Phelps) (1859-1903) was the tenth appointee, as an assistant physician, to the staff of the state hospital for insane at Rochester, Olmsted County, and on October 1, 1889, entered on eight years of exceptionally meritorious service.

Born on September 10, 1859, in Bucks County, Pennsylvania, Sara Virginia Linton was one of the five children of Joseph Linton and Christiana C. Beans Linton. It is of interest that of these children of a farm family in which the professional career had not been traditional, three became physicians. About 1860

Mr. and Mrs. Linton with their children emigrated from Pennsylvania to Wabash County, Indiana, it is said, and soon afterward to southern Minnesota, to settle near Kellogg, Wabasha County, in the days before the railroad had penetrated to that section. Within a few years they removed to Minneapolis, primarily to place the children in school. At a later period the father and two of the daughters filed on tracts of land in northwestern Minnesota.

Sara V. Linton obtained her early education in the common schools of Minneapolis, her academic courses at the University of Minnesota, and her medical training at the Woman's Medical College of Philadelphia. After receiving the degree of doctor of medicine, in 1889, she served for a few months as resident physician at the Northwestern Hospital, Minneapolis, before beginning her work with the insane.

The need for a department of gynecology at the state hospital in Rochester had become apparent by 1889 and inauguration and development of the work were placed in the hands of Dr. Linton. Throughout her service she was in charge of all gynecological procedures. Her "Report of the Gynaecological Department of Rochester State Hospital for 1895" in the *Northwestern Lancet* of April 15, 1896, gives an interesting résumé of the department's history and scope. In it she stated: "We are greatly indebted to the Drs. Mayo, of this city, for their kind assistance in helping us to extend our surgical work to include all of the more grave operations." Dr. Linton Phelps in those major procedures acted as surgical assistant. It was chiefly to meet the need for especially trained attendants in the new department of gynecology that the hospital training school for nurses was established in 1890. In foregoing notes on Dr. Robert McE. Phelps there was mentioned the able work of Dr. Linton in the school. There is record as well of her papers before special groups concerned with the care of the insane, her contributions to the hospital *Bulletin,* and her appearances before medical societies. In July, 1892, she was a founder of the Southern Minnesota Medical Association and in the same period a representative of the Olmsted County Women's Auxiliary to the World's Fair, heading the committee made up of herself, Mrs. W. J. Mayo and Mrs. Mark Olin, that had to do with all matters relating to health and public welfare.

After her marriage, on June 1, 1892, to Dr. Robert McE. Phelps, Dr. Linton Phelps continued her work at the hospital until February, 1898, when she resigned. As stated earlier, in the spring of 1898 she became ill with pulmonary tuberculosis. Changes of residence, to Wisconsin, to Walker, Minnesota, and Phoenix, Arizona, gave only temporary benefit, and on June 21, 1903, a few weeks after her return from Arizona Dr. Linton Phelps died in Rochester in her forty-fourth year. She was survived by her husband and by two little daughters.

Dr. Sara V. Linton Phelps has been described by those who knew her best as a slender woman of medium height and coloring, of special abilities, whose sympathetic and responsive spirit was apparent in her manner and facial expression. The esteem in which she was held in her profession was expressed not alone in tribute at her death but throughout her career by her immediate associates. In the words of Dr. A. F. Kilbourne, superintendent of the Rochester State Hospital in those years, "Her kindly care has brought relief to many a suffering woman, and much credit is due her for her painstaking treatment of these cases." And on her retirement, "Dr. Phelps was a most faithful and efficient officer whose soul was in her work."

The three physician members of the Linton family of Minneapolis were assistant physicians at the Rochester State Hospital. Dr. Linton Phelps was the first. Dr. Laura A. Linton (1853-1915), a graduate of the medical department of the University of Minnesota in 1900, in June of that year began her work in Rochester; her death occurred there in 1915. The late Dr. William B. Linton (1855-1942), a graduate of Jefferson Medical College, Philadelphia, in 1886, after practicing medicine in Minneapolis twenty-five years, spent fifteen years, beginning in September, 1912, in Rochester. Early in 1928 he returned to Minneapolis, where he carried on a private practice until his death.

Henry Stanley Plummer (1874-1936), distinguished medical scientist, was an associate of the Drs. Mayo in Rochester, Minnesota, from 1901 until his death. Although he was not a resident of Olmsted County before 1900, in the decades of which this article particularly treats, he is included, for reason, in the series of men who practiced in the county in that period: As an undergraduate medical student he spent part of his vacations at St. Mary's Hospital, Rochester, "pursuing the study of the practicing practitioner," as the local press phrased it; in the first two years of his professional life (1898-1900), in country practice, he was even more closely concerned with the practice of medicine in Olmsted County than he was with practice in Mower County, where he lived, and in Fillmore County, where he was born.

Born on March 3, 1874, in the village of Hamilton, Henry S. Plummer was one of the four children of Dr. Albert Plummer, of English descent, and Isabelle Steer Plummer, of Scotch-English parentage. Isabelle S. Plummer, daughter of Greenberry Steer, of Adrian, Michigan, was before her marriage a schoolteacher in various parts of Fillmore County, notably in Rushford and in Sumner Township. Dr. Albert Plummer (1840-1912), one of southern Minnesota's best trained and ablest physicians, was a native of Auburn, New Hampshire, who came to Fillmore County in 1869; a graduate of Bowdoin Medical College in 1867, he earlier was a student at the medical school of Dartmouth College, where his father, Dr. Nathan Plummer, a native of Londonderry, New Hampshire, had been a student in 1816.

Henry S. Plummer grew up in Hamilton, attended the village school, and in 1892 was graduated from high school at Spring Valley, near by. After taking two years of academic work at the University of Minnesota, he enrolled in the medical department of Northwestern University for a course of four years; it was the length of the course, then unusual in this country, and the wealth of clinical material available, that fixed his choice on Northwestern University. In 1898 he received the degree of doctor of medicine and returned home to begin medical practice with his father, who since 1893 had lived in Racine, Mower County; the practice of father and son extended widely into the three counties already mentioned.

From childhood Henry Plummer accompanied his father whenever possible on rounds in village and country and by his sixteenth year he had become a practical clinical assistant. In that year his interest was aroused by an unusual case of goiter in his father's practice, and thereafter, in premedical years, at medical school, and in practice, he gave special attention to the thyroid gland and its diseases. During his formal medical course he began a continuing study of the blood also. Late in 1900 Dr. William J. Mayo, called in consultation by Dr. Albert Plummer in a case of aleukemic leukemia (leukopenic leukemia) was impressed so profoundly by Dr. Henry S. Plummer's knowledge of the blood and by his scientific imagination that on returning to Rochester Dr. Mayo proposed to his brother Dr. Charles H. Mayo that they invite the young physician to Rochester for a discussion and if possible add him to their staff to bring the clinical laboratories up to date.

Dr. Plummer joined the staff of the Drs. Mayo early in 1901. He became the chief of the Division of Medicine of the Mayo Clinic and a professor of medicine of the Mayo Foundation for Medical Education and Research, Graduate School, University of Minnesota. During his thirty-five years in Rochester his work in diversified fields of medical science brought increased distinction to the clinic and merited prestige and high honor to himself. He was the author and the co-author of numerous scientific articles. His contributions to hematology, roentgenology, bronchoscopy, esophagoscopy, electrocardiography, and to knowledge of the physiology and pathology of the thyroid gland are known universally.

He was active in many scientific societies, which are listed in official biographical reference books. In 1935 Northwestern University conferred on him the degree of doctor of science (honoris causa). He was a Republican, a Mason, and a supporter of the Episcopal Church.

To Dr. Plummer, a master of mechanics and an inspired amateur architect, is due much of the efficiency of the Mayo Clinic buildings of 1912 and 1929. When each building took form it was the realization of a dream of the Drs. Mayo and their associates and the embodiment of Dr. Plummer's extraordiary mechanical genius. Perhaps most notable in the structure of 1929 are his numerous devices to facilitate intra-clinical communication and transfer of case records from floor to floor and from the clinic to the affiliated hospitals. In this building he gave new scope to the department of case records and statistics which he had initiated and directed, and he aided in increasing the efficiency of the library. Fittingly, a beautiful auditorium on the fourteenth floor bears his name. Dr. Plummer had a major part also in the design and construction of the Franklin Heating Station in Rochester, and because of his knowledge of physics and engineering he was sought as a consultant by the company that supplies Rochester and vicinity with natural gas.

Well called a genial philosopher and a profound thinker, Dr. Plummer was a man of keen and whimsical wit and humor, a scholar, a patron of the arts, literature and music, a horticulturist of standing; it was his expressed belief that the physician who renders his best service must have cultural interests as well as scientific knowledge. He traveled widely at home and abroad for study and for pleasure; he enjoyed motoring and, for some years in later life, cruising in his powered house boat on the Mississippi River.

Henry Stanley Plummer was married on October 4, 1904, to Daisy M. Berkman, a daughter of Dr. David M. Berkman and Gertrude Emily Mayo Berkman, of Rochester; Mrs. Berkman was the eldest child of Dr. and Mrs. William Worrall Mayo.

On December 31, 1936, in his sixty-third year, Dr. Plummer died from cerebral thrombosis at his home, Quarry Hill, in southwestern Rochester. Burial was in Oakwood Cemetery, Rochester. He was survived by his wife; a daughter, Gertrude Plummer (Mrs. James A.) Thomas, of Rochester; a son, Robert S. Plummer, of Los Angeles; and five grandchildren; and by his brother, Dr. William Albert Plummer, of Rochester.

Dr. W. A. Plummer (1883-1949) in 1910 joined the Drs. Mayo as an assistant in medicine. In 1949 he was the head of a section in medicine (since 1917) of the Mayo Clinic, and an associate professor of medicine, Mayo Foundation, Graduate School, University of Minnesota. (Dr. W. A. Plummer died at his home in Rochester on March 22, 1949, from heart disease, in his sixty-sixth year.)

In 1950 Mrs. Henry S. Plummer, a talented musician and a leading worker for civic and social welfare in Rochester, continued to make her home at Quarry Hill.

Harriet E. Preston (1840?-1929), unmarried, a graduate of the Woman's Medical College of Pennsylvania in 1868, came to Rochester, Minnesota, in the autumn of 1869 and there practiced medicine and surgery until the summer of 1873, when she removed to St. Paul. She was in active practice in St. Paul through 1888 when, it is believed, she returned to Pennsylvania.

Her office and residence in Rochester first were in the home of Mrs. G. Bisbee, one door north of the Northwestern Wagon and Carriage Works, on Broadway. Later she occupied an office over Poole and Geisinger's Drug Store. Liked as a woman, she had personal friends among the solid citizens of the community, and respected as a physician, she occasionally assisted Dr. W. W. Mayo and other local physicians of excellent standing in consultations and in operative procedures. She was a member of the Rochester Conversazione, successor to or an offshoot of the Olmsted County Medical Society in the early seventies; on one occasion she read before the group an essay on the voice in which she explained the production of the voice and the regulation of its tones. Dr. Preston was licensed in Minnesota on December 28, 1883, under the medical practice act of that year, receiving certificate No. 486 (R).

A few of Dr. Preston's concise writings are preserved in earliest issues of the *Northwestern Medical and Surgical Journal.* One, in 1873, is a report on the causes of diseases peculiar to women, presented before the state board of health and published by request of that board; in the report she stated, "I am satisfied that until the habits of women are modified, neither medical science nor surgical art can give them a satisfactory degree of health." Another, "Why Are These Things So?" is her comment on an article, "Medical Opinions," by Dr. Brewer Mattocks, of St. Paul, which had appeared some weeks earlier. Her theme was the reason why medical opinions rated so low in the scientific and intellectual market. Her plea was for the protection of the title of doctor of medicine from confusion with the titles assumed by numerous sects of "pathists" and for rejection of "the odious and misplaced term *allopath*." She asserted that the knowledge of the medical profession should not be a sealed book and pointed out the need for physicians to lecture before schools, lyceums and scientific associations: "We need more writers, more skilled physicians who can and will, like Oliver Wendell Holmes, give to the world medical facts and philosophy, in a form that will please the taste and instruct the understanding."

(To be continued in the June issue.)

President's Letter

PHYSICIANS AS CITIZENS

Despite the contributions that the medical profession has made to the progress of life and culture, physicians have only recently won their citizenship from the court of American public opinion. Through an honest, vigorous appeal to the people of this country, the profession has regained its aggregate right of free speech and is rapidly attaining a new position of leadership, not only in its preempted field of medical science, but in the economic, governmental and social structures of this nation.

The interest with which the public regards the idea of a doctor being a citizen, too, is an inverted criticism of our all-too-recent abstinence from the affairs of state and nation.

Cumulative and dangerous trends of economic thought catapulted us, ready or not, into active roles in the formation of opinion, policy and law. We have come to realize that the public's health cannot be guarded by medical attention alone, that sometimes an unscrupulous politician can be more threatening than a virus to American health standards and an infiltration of decadent thinking more disastrous than an epidemic.

The onslaught of socialistic propaganda has been countered and virtually inundated by a barrage of truth from the family doctors in every community.

This re-alignment with the public, this new confidence the profession has gained, has developed at a time when national unity is essential. It has been said that total war between two great nations possessing the atom bomb and the means to deliver it could destroy civilization as we know it. Physicians bring to the cause of justice and freedom, the training and ability to act in a crisis. Not easily stampeded by emergencies, physicians, it is hoped, will be able to maintain key civil defense positions, in preparation for a time we pray will never come.

The medical profession is coming of age and assuming its rightful responsibilities in a century of uncertainty and fear and, confronted with multiplying challenges, we can only choose to rise to these challenges as better doctors *and* better citizens.

J. F. Norman

President, Minnesota State Medical Association

Editorial

Carl B. Drake, M.D., *Editor;* George Earl, M.D., Henry L. Ulrich, M.D., *Associate Editors*

OWEN H. WANGENSTEEN AN APPRECIATION

THIS issue of Minnesota Medicine is being dedicated to Dr. Owen H. Wangensteen in commemoration of the twentieth anniversary of the publication of his first work on the relief of intestinal obstruction by siphonage. We are happy to share in paying tribute to Doctor Wangensteen, and his accomplishments, with the Minnesota Academy of Medicine, which devoted its December meeting to honoring him, and the Saint Paul Surgical Society, which similarly recognized him at its meeting in January at which Dr. Alfred Blalock of Johns Hopkins Medical School was the guest speaker.

The journal has been fortunate in having two original articles written specially for this issue. The first is by Dr. I. S. Ravdin, John Rhea Barton professor of surgery; and Dr. William E. DeMuth, assistant instructor in surgery, University of Pennsylvania School of Medicine. The second is by Dr. Frederick A. Coller, professor of surgery at the University of Michigan, and his associate, Dr. Robert E. Lee Berry, a former student under Dr. Wangensteen. The address given by Dr. C. F. Dixon at the commemorative meeting of the Minnesota Academy of Medicine appropriately appears, too, in this issue.

The medical profession of Minnesota acclaims a man of renown. The present is the most appropriate time to express our appreciation of one of our members, Owen H. Wangensteen.

THE VARIETY CLUB HEART HOSPITAL

THE OPENING and dedication of the Variety Club Heart Hospital on the University of Minnesota campus on March 20, 1951, merits special recognition. It is the culmination of an idea which had its conception in 1945 in a conversation between the late Al Steffes, a theater owner in Minneapolis, himself a sufferer from heart disease, and Dr. Morse J. Shapiro, Associate Professor of Medicine and Pediatrics at the University of Minnesota. The idea was the building of a hospital to be devoted exclusively to the study and treatment of heart disease.

The idea was presented by Mr. Steffes to the Variety Club of the Northwest which had the vision and boldness to sponsor the project. This Variety Club is a so-called "tent" of the parent organization, the Variety Club International, which includes thirty-six "tents" located all over this country, and in Mexico, Canada and England. Membership includes almost anyone connected with the show business. The first club was organized in the late 1920's in Pittsburgh as an entirely social undertaking. In 1928 its character altered when it took over the care of a one-month-old baby foundling left in a Pittsburgh theater. From then on, the club took as its motto, "A little child shall lead them," and the international organization has carried on activities which have benefited thousands of children yearly.

The Variety Club of the Northwest (Tent No. 12) is fifteen years old. In its short existence, it has carried on a number of activities for the benefit of children, such as equipping of a projection room at Glen Lake Sanatorium and supplying a show each week to the patients; contributing to the Twin City Milk Fund; contributing $25,000 to aid refugees from Fascist tyranny. In 1944, it contributed $85,000 to Sister Kenny for polio sufferers.

In 1945 the Variety Club of the Northwest began raising funds for a heart hospital of seventy-eight beds. Aided by other civic organizations, the University of Minnesota, and largely by the public through its contributions of quarters and dimes in collection boxes in theaters all over the Northwest, the local club was able to present the University of Minnesota in September, 1948, with a check of $300,000 to begin construction. During the last three years, it has raised another $160,000 and has promised support to the amount of $25,000 yearly.

About one-third of the total cost of $1,500,000 was raised by the Variety Club. The Federal Government, through the agency of the Hill-Burton act, donated $600,000; the University, individuals and a bank loan of $100,000 made up the needed total.

The hospital, which is a four-story structure just below and attached to the University Medical Unit, is the last word in hospital construction. One story is devoted to adults, one to children with a school room and theater, and the fourth floor to research. The hospital is being operated by the medical school faculty.

The dedication dinner was held March 20 in the main ballroom of the Coffman Memorial Building. The Variety Club Heart Hospital was graciously presented to the University by Mr. Arthur W. Anderson, Chief Barker of the Variety Club of the Northwest and chairman of its Heart Committee. President Morrill accepted the gift for the University.

No trifling matter, too, is the fund of $500,000 raised by the American Legion and the Legion Auxiliary for the endowment of the American Legion Memorial Professorship to be devoted to research in heart disease as it affects children. Dr. Lewis Thomas is the first research professor. Another professorship established in the will of the late George S. Clark will be devoted to research in heart and allied diseases in the adult. Other generous grants for research in heart disease have been made by the Helen Hay Whitney Foundation, the Silas McClure Fund, the Minnesota Heart Association, the Alpha Phi Society, and the Minneapolis Chapter of the Society for the Preservation and Encouragement of Barber Shop Quartet Singing in America.

The Variety Club Heart Hospital is the culmination of the efforts of many individuals and organizations in response to a spark which started a widespread response in the hearts of many Minnesota citizens.

MEDICAL SCHOOLS AND THE AMA

SOME of the accusations cast at times at the organized profession show a woeful lack of knowledge of the facts.

The profession, that is, the AMA, has recently been accused of deliberately restricting the production of doctors in order to reduce competition and insure its financial well-being. How impossible this would be is brought out by Dr. Henderson, president of the AMA, in a recent article.* While physicians have been active as individuals and groups in the establishment of medical schools, the organized profession has never set a quota for the number of medical schools nor the number of medical students. If it had, such action would have had no authority, for medical schools are administered by medical faculties, university administrators and trustees.

Back in 1910, the publicity that followed the Simon Flexner survey of medical schools in the country resulted in the abolition of many poorly equipped medical schools and the consolidation of others. The AMA began rating medical schools that same year, and the quality of medical education has continuously improved since that date. As a result the medical care of the people has correspondingly been bettered. Now comes the criticism that the standards set by the Council on Medical Education and Hospitals for medical schools are so high that their cost of administration is prohibitive. The answer is that the standards set are limited to basic principles that reflect educational policies developed and practiced by leading medical schools and provide great leaway for individuality in the various schools. Actually the standards established are not prohibitive. Medical schools are at present being contemplated in New Jersey and in Florida.

As a matter of fact, the establishment and development of medical schools have been, by and large, co-operative undertakings between members of the profession and universities, as is only proper. The same co-operation should continue in the administration of medical schools and doubtless will.

SENATOR HUMPHREY'S BABIES

ACCORDING to the *Bulletin of the AMA* issued by the Washington office under date of April 5, 1951, Senator Humphrey of Minnesota introduced on March 30 a bill (S 1235) in the Senate "To extend to persons entitled to receive medical care by or through the Veterans Administration the right to elect, to receive Chiropractic treatment." The bill provides that the Chief Medical Director of the VA would be required to make services of qualified chiropractors available to veterans. Senator Magnuson prepared the bill at the request of the Director of the Veterans of Foreign Wars, and for reasons unknown to us the bill was presented by Senator Humphrey. This is another example of the kind of enlightened leadership which our Senator Humphrey has shown in the past.

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*Henderson, Elmer L.: Medicine and medical education. M. Ann. District of Columbia, 20:181, (April) 1951.

Senator Humphrey has also submitted a bill (S 1245) "To establish a program of grants-in-aid to assist the States to provide maternity and infant care for the wives and infants of enlisted members of the Armed Forces during the present emergency." This is a plan similar to the EMIC of World War II. It differs, however, in that it provides benefits for all enlisted members of the Armed Forces instead of just the lowest four pay-grades. The matter of doctors' fees and hospital payments is left to the Administration of the Federal Security Agency. This legislation, if enacted, would cease to be effective at the close of the fiscal year in which the President declares an end to the national emergency.

This bill has had the backing of service organizations, both public and private. On March 28, 1951, the Minnesota State Legislature passed a resolution which was signed by the Governor requesting Congress to provide this additional remuneration for the families of men in service. Much as government-operated medical care and fees determined by the government are distasteful to the medical profession, it cannot be denied that enlisted personnel in the low-pay brackets cannot provide medical care for their wives and infants when their families increase. The administration of the EMIC program during World War II provided essentially for obstetrical care furnished by general practitioners. The fees allowed for obstetrical care were not what specialists, as a rule, charged. The obstetrical care provided, however, was good medical care. Snags in the operation of the law were encountered in the designation and selection of specialists as consultants. Probably leaving the selection of a consultant to the obstetrician in charge of the case would work most equitably in event this proposed bill is enacted, which it probably will. The general practitioner best knows the surgeon in his community whose opinion on a surgical or orthopedic problem is of value in consultation.

THE MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

230 Lowry Medical Arts Building
Saint Paul 2, Minnesota

Julian F. Dubois, M.D., Secretary

Saint Paul Man Pleads Guilty to Abortion Charge

Re. State of Minnesota vs. John W. Foster

On April 2, 1951, John W. Foster, fifty-four years of age, 276 Ramsey Street, Saint Paul, Minnesota, entered a plea of guilty in the District Court of Ramsey County, to an information charging him with the crime of abortion. Foster had been arrested on March 6, 1951, following information received by the Minnesota State Board of Medical Examiners that an abortion had been performed on a twenty-five-year-old Saint Paul divorcee. Foster, upon being arraigned in the District Court, admitted that he had performed the abortion and received $50.00 for his services. Foster denied having performed any other abortions and claimed that his present difficulty was due to excessive drinking. Judge Arthur A. Stewart continued the case to April 16, for a pre-sentence investigation. On April 16, Foster was sentenced to a term of not to exceed four years in the State Reformatory at St. Cloud, the sentence being stayed and the defendant placed on probation.

Foster, who holds no license to practice any from of healing in the State of Minnesota, stated to the Court that he was born at Eagle Point, Wisconsin; that he completed the eighth grade in school and has lived in Saint Paul since 1928. Foster stated that he had been doing photographic work and had worked part time as a musician. Foster was defeated as a candidate for sheriff in the 1950 election.

TROUBLE MAKERS

Some people are inclined frequently to exaggerate in their statements. Some authors do so deliberately in order to start talk and, in the case of lay journals, increase sales. Such is an article entitled "Trouble in Our Hospitals" by Albert Deutsch which appeared recently in the *Woman's Home Companion.* In reply the secretaries of the American Hospital Association and the secretary of the American Medical Association sent the following telegram to the editor of the *Woman's Home Companion.* After all he didn't have to publish the article and a very little inquiry would have disclosed its misleading nature.

The telegram read as follows:

> We wish to protest strongly the tone of "Trouble in Our Hospitals" by Albert Deutsch in the current issue of *Woman's Home Companion.*
>
> While it is true there are some areas of disagreement between physicians and hospitals—just as there are in all human relationships—the author of this article has magnified these differences of opinion out of all proportion to the truth. His statement that "the AMA and the hospitals, which should be marching hand in hand toward better services for the sick, are locked in combat," is nothing short of sensationalism.
>
> The doctors and hospitals have always co-operated in efforts to deliver the best possible medical care and will continue to do so. Any differences are being ironed out peaceably around the conference table.
>
> George F. Lull, *Secretary and General Manager*
> *American Medical Association*
> George Bugbee, *Secretary*
> *American Hospital Association*

Medical Economics

Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association
George Earl, M.D., Chairman

AMA JOURNAL MISSING? PAY 1950 DUES

Members of the American Medical Association who are not receiving their *AMA Journal,* should, according to word from the American Medical Association, see that they have paid their 1950 dues. Numerous inquiries about the situation throughout the country have brought this answer: when the 1950 dues were not paid by the end of the year, the doctor was entered in the category of delinquent membership in the AMA, and his name was automatically removed from the roster of members and from the list of those who receive the *Journal.*

The American Medical Association informed doctors that delinquent members will not be entered on the circulation list of the *Journal* until they have been reinstated to full membership, which means that they must pay BOTH their 1950 and 1951 dues. Direct word also states that "members who paid their 1950 dues on time (before the end of 1950) are in good standing and have until the end of 1951 to pay their 1951 dues. They will continue to receive the *Journal* during 1951 even if they cannot pay their 1951 dues until later this year."

After delinquent members have paid up both their 1950 and 1951 dues, they are reinstated and will begin receiving the *Journal* again. However, says the AMA, they should not expect to get the *Journal* the following week after they have written out their check. The process of reinstatement is often complicated and involves considerable office procedure. Prompt payment of dues will assure prompt delivery of the *Journal of the American Medical Association.*

BRITISH HEALTH SERVICE NEEDS DEATH "POTION"

Expressing the opinion of many forthright citizens of both England and America, the *Journal of the Oklahoma State Medical Association* recently suggested that the British Health Service, because of its countless shortcomings, be given a "lethal potion" to put it out of its misery. Quoting *Time* magazine's recent article on the "meatless muddles of the Socialist government," it tells of one British doctor's comment, which seems to summarize much that has been said of the system. The doctor said that, "The strain of living conditions is making people take sleeping tablets like a second vegetable."

The medical journal makes this comment on the "calamity of compulsion:"

> "Unfortunately, a sound sleep . . . under the National Health Service brings surcease of short duration with the inevitable return to hunger and hopelessness. Indeed this is poor compensation for such calamity.
>
> "All this is reminiscent of the long standing quip, 'the more good beefsteaks in Britain, the more brave soldiers.' According to current reports, even the harassed hungry doctors would like to take a pill and sleep off this ugly nightmare. How about a lethal potion for the National Health Act."

REPORT ISSUED ON VOLUNTARY INSURANCE

A report submitted to the subcommittee on health of the Senate committee on labor and welfare, recently gave a comprehensive picture of the operations in the health insurance field of the insurance business in the United States. According to *Eastern Underwriter,* the report "revealed the important role played by the insurance business in the spectacular progress made by voluntary health insurance in the last few years in helping the American people to meet the unpredictable costs of hospital and medical care." The report stated:

> "As of the end of 1949, protection provided by insurance companies represented 46 per cent of all hospitalization insurance carried by the American people at that time, three-fifths of all surgical expense protection, and one-third of all medical expense protection. In all, 41 per cent of the population were covered for

hospitalization insurance at the end of 1949, 25 per cent of the population for surgical expense, and 9 per cent for medical expense."

The report was based on the volume of business done by seven associations which represent over 200 companies, which, combined, account for over seven-eighths of the total health and accident business done by insurance companies in the United States.

A breakdown of figures showed detailed information on types of policies, benefit provisions, distribution of coverage by states, and samples of ownership by sex, age, occupation and income brackets. Some of the main points were:

> "Women represent nearly half of those covered under group hospital contracts written by insurance carriers on adults, 45 per cent of those under group surgical contracts, and 40 per cent of the number of adults under group medical insurance contracts. There is a substantial proportion of coverage among farmers and farm laborers, refuting the frequent assertion that health insurance is largely lacking in rural areas . . . A recent analysis of a group of newly-issued hospital expense policies indicates that approximately two-thirds of those obtaining this protection were in income brackets under $4,000 a year. Every state and the District of Columbia have substantial voluntary health insurance coverage . . ."

JOURNAL EXPRESSES LONG-RANGE VIEWPOINT

During this period of world affairs, when everyone seems to have a quick cure for the world's ills, stable ideas and views come from many sources—and those ideas are often left unnoticed. One such is a recent editorial in the *New England Journal of Medicine* which urges mankind to take the long view of things: "were some safe plateau of mutual understanding to be reached, a morass of unnecessary human misery might be avoided by everyone."

Continuing, the *Journal* says:

> "There is little doubt that the more ardent proponents of compulsory health insurance, so called, believe that modified socialism represents a political status that can be maintained, and that those citizens capable of the most intelligent leadership and imbued with the purest motives will automatically rise, like cream, to the top. Their opponents, on the other hand, despite their bitter vehemence, have no good reason for not examining with an open mind any proposals that are made and accepting those that can be said to represent progress toward a common goal.
>
> ". . . the difficulty for those who wish to be honest is not in deciding whether to follow a right course or a wrong one; it lies in liberating their minds from misconceptions and prejudices, so that they may more accurately decide where the greater good may lie. In doing this, they may realistically appreciate their opponents' reasons for holding to their own views."

The *Journal* wonders if man's apparent progress is only that of Sisyphus, the man who labored eternally with a stone toward the unattainable summit of the hill. "Man still must learn that true progress is not made through scientific achievement or the acquisition of knowledge, but through the wise application of their resources," the *Journal* declares.

Through this highly philosophical viewpoint comes the added meaning that not only medicine and all other professions, but the whole of mankind, must resolutely look itself in the face, rate itself with merits and demerits, and work out its own salvation.

The *Journal's* "far viewpoint" is concluded with this:

> "Salavation for the present race of mankind, if it is to come, will come not through the development of superior qualities, but through the proper use of the talents that man now possesses. It is not his to soar on wings attached with wax, but to stand erect on the good earth he now inhabits. The capacity is present. What is necessary is education, with emphasis on ethics, and a stirring of the loftier minds to assume that leadership without which the goal so nearly won is lost."

DEFENSE FUNDS FOR BETTER HEALTH?

Evidence that administration forces would try to include their pet schemes in defense budgeting, has again been noted by the *Wall Street Journal,* about which the paper quickly sets out to "let the people know." Quoting Truman as saying, "Our defense needs include, in many areas, more food, better education, and better health services," the *Journal* goes on:

> "No one can argue that more food, better education and better health are not desirable. But whenever such ideas come to the front they're inevitably coupled with the further idea that Uncle Sam is the one to put up the money to make them possible. Point Four is already underway as the current caboose on our billions-of-dollars foreign aid train. There's a good chance that it will become a global freighter all on its own, to carry our dollars around the world.
>
> "Every dollar that goes abroad this way is a dollar less for our own schools, our own streets and our many local services which have deteriorated under two decades of depression and war."

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C. N. Harris, M.D.	Hibbing
E. A. Heiberg, M.D.	Fergus Falls
R. N. Jones, M.D.	St. Cloud
F. R. Kotchevar, M.D.	Eveleth
L. R. Prins, M.D.	Albert Lea
R. H. Wilson, M.D.	Winona

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J. W. Duncan, M.D.	Moorhead
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Sixth District

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Seventh District

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Eighth District

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H. T. Petraborg	Aitkin

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F. E. Mork	Anoka
E. W. Miller	Anoka

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Arnold Larson	Detroit Lakes

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D. D. Whittemore	Bemidji

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†Otto Bergan	Clinton
D. M. O'Donnell	Ortonville

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R. G. Hassett	Mankato
J. C. Vezina	Mapleton

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Ed. Wohlrabe	Springfield
O. B. Fesenmaier	New Ulm
A. P. Goblirsch	Sleepy Eye

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J. K. Butler	Cloquet
R. M. Eppard	Cloquet
E. O. Hanson	Cloquet

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B. H. Simons	Chaska
R. E. Pogue	Watertown

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O. F. Ringle	Walker
C. H. Coombs	Cass Lake

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M. A. Roust	Montevideo
Ludwig Lima	Montevideo
M. A. Burns	Milan

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A. E. Holmes	Rush City
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O. H. Johnson	Moorhead
J. W. Duncan	Moorhead

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W. E. Anderson	Clearbrook

COOK COUNTY

W. R. Smith	Grand Marais

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E. S. Schutz	Mountain Lake
J. V. Carlson	Westbrook

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G. I. Badeaux	Brainerd
J. B. Nixon	Crosby

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Paul G. Polski	South Saint Paul

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E. T. Reeve	Elbow Lake
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E. J. Lillehei	Robbinsdale

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Richard Whitney	Cambridge

ITASCA COUNTY

E. K. Rowles	Coleraine
G. M. Erskine	Grand Rapids
M. J. McKenna	Grand Rapids

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J. T. Rose	Lakefield
H. A. Christensen	Jackson
W. H. Halloran	Jackson

KANABEC COUNTY

C. S. Bossert	Mora
W. F. Nordman	Mora

KANDIYOHI COUNTY

R. J. Hodapp	Willmar
R. P. Michels	Willmar
H. G. Bosland	Willmar

KITTSON COUNTY

G. A. Knutson	Hallock
A. S. Berlin	Hallock
R. B. Skogerboe	Karlstad

KOOCHICHING COUNTY

R. D. Hanover	Little Fork
David Potek	International Falls
C. C. Craig	International Falls

LAC QUI PARLE COUNTY

Magnus Westby	Madison
V. M. Johnson	Dawson

LAKE COUNTY

Ralph Papermaster	Two Harbors

LAKE OF THE WOODS COUNTY

A. A. Brink	Baudette

LINCOLN COUNTY

A. L. Vadheim	Tyler
P. E. Hermanson	Hendricks
George Friedell	Ivanhoe

LYON COUNTY

B. C. Ford	Marshall
L. M. Benson	Tracy
W. W. Yaeger	Marshall

MAHNOMEN COUNTY

K. W. Covey	Mahnomen
K. A. Danford	Mahnomen

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A. E. Carlson	Warren
C. N. Holmstrom	Warren

MARTIN COUNTY

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O. E. Wandke	Fairmont
J. M. Grogan	Ceylon

MCLEOD COUNTY

H. H. Holm	Glencoe
A. M. Jensen	Brownton
E. W. Lippmann	Hutchinson

MEEKER COUNTY

H. E. Wilmot	Litchfield
John Verby	Litchfield
Lennox Danielson	Litchfield

MILLE LACS COUNTY

Melvin Vik	Onamia
W. R. Blomberg	Princeton
Harry Berge	Mora

MORRISON COUNTY

D. L. Johnson	Little Falls
Alex Watson	Royalton

MOWER COUNTY

R. S. Hegge	Austin
P. A. Robertson	Austin
R. R. Wright	Austin
L. F. Twiggs	Austin

MURRAY COUNTY

B. M. Stevenson	Fulda
R. F. Pierson	Slayton
H. D. Patterson	Slayton

NICOLLET-LE SUEUR COUNTY

Hobart Johnson	North Mankato
L. E. Sjostrom	St. Peter
M. E. Lenander	St. Peter

NOBLES COUNTY

E. W. Arnold	Adrian
E. A. Kilbride	Worthington
C. R. Stanley	Worthington

NORMAN COUNTY

Eskil Erickson	Halstad
Theodore Loken	Ada
Bruce Boynton	Ada

OLMSTED COUNTY

H. F. Polley	Rochester
T. O. Wellner	Rochester
C. B. McKaig	Pine Island

OTTER TAIL COUNTY

Charles Lewis	Henning
W. L. Burnap (Deceased)	Fergus Falls

PENNINGTON COUNTY

O. F. Mellby	Thief River Falls
T. E. Bratrud	Thief River Falls
M. D. Starekow	Thief River Falls

PINE COUNTY

A. K. Stratte	Pine City
E. G. Hubin	Sandstone
H. P. Dredge	Sandstone

PIPESTONE COUNTY

W. G. Benjamin	Pipestone
J. G. Lohmann	Pipestone
G. Beckering	Edgerton

POLK COUNTY

C. L. Oppegaard	Crookston
J. F. Norman	Crookston
George Sather	Fosston

POPE COUNTY

Paul Swedenberg	Glenwood
A. F. Giesen	Starbuck
B. A. McIver	Lowry

RAMSEY COUNTY

A. G. Schulze	Saint Paul
T. S. McClanahan	White Bear Lake
Earl Black	St. Paul

RED LAKE COUNTY

L. N. Dale	Red Lake Falls
A. M. McKaig	Red Lake Falls

RENVILLE COUNTY

J. Dordahl	Sacred Heart
S. F. Ceplecha	Redwood Falls
E. C. Gaines	Buffalo Lake

RICE COUNTY

D. W. Francis	Morristown
P. H. Weaver	Faribault
Warren Wilson	Northfield

ROCK COUNTY

C. L. Sherman	Luverne
A. C. Martin	Luverne
F. W. Bofenkamp	Luverne

ROSEAU COUNTY

J. L. Delmore, Sr.	Roseau
D. O. Berge	Roseau

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M. G. Fredricks	Duluth
J. A. Malmstrom	Virginia
J. K. Butler	Cloquet

SCOTT COUNTY

H. M. Jurgens	Belle Plaine
B. F. Pearson	Shakopee
F. P. Kortsch	Prior Lake

SHERBURNE COUNTY

A. B. Roehlke	Elk River
E. F. Clothier	Elk River
G. H. Tesch	Elk River

SIBLEY COUNTY

Rolf Hovde	Winthrop
Thomas Martin	Arlington
D. C. Olson	Gaylord

STEARNS COUNTY

R. N. Jones	St. Cloud
K. A. Walfred	St. Cloud
C. F. Brigham	St. Cloud

STEELE COUNTY

D. H. Dewey	Owatonna
D. W. Roberts	Owatonna
J. F. Schaefer	Owatonna

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M. L. Ransom	Hancock
R. A. Rossberg	Morris
A. I. Arneson	Morris

SWIFT COUNTY

E. J. Kaufman	Appleton
R. P. Griffin	Benson
Hans Johnson	Kerkhoven

TODD COUNTY

M. E. Mosby	Long Prairie
J. M. Cook	Staples
C. B. Will	Bertha

TRAVERSE COUNTY

A. L. Lindberg	Wheaton
A. E. Magnuson	Wheaton
W. F. Muir	Browns Valley

WABASHA COUNTY

C. G. Ochsner	Wabasha
E. C. Bayley	Lake City
E. W. Ellis	Elgin

WADENA COUNTY

L. T. Davis	Wadena
C. H. Pierce	Wadena
W. E. Parker	Sebeka

WASECA COUNTY

G. H. Olds	New Richland
H. M. McIntire	Waseca
B. J. Gallagher	Waseca

WASHINGTON COUNTY

W. R. Humphrey	Stillwater
Russell E. Carlson	Stillwater

WILKIN COUNTY

W. E. Wray	Campbell

WINONA COUNTY

R. H. Wilson	Winona
R. B. Tweedy	Winona
Herbert Heise	Winona

WRIGHT COUNTY

John J. Catlin	Buffalo
C. L. Roholt	Waverly

YELLOW MEDICINE COUNTY

R. H. Kath	Wood Lake
E. R. Hudec	Echo
Carl Lundell	Granite Falls

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First District

J. M. Waugh, M.D. .... Rochester
Counties—Dodge, Fillmore, Freeborn, Goodhue, Houston, Mower, Olmsted, Rice, Steele, Wabasha, Winona

Second District

R. C. Hunt, Sr., M.D. .... Fairmont
Counties—Cottonwood, Faribault, Jackson, Martin, Murray, Nobles, Pipestone, Rock.

Third District

L. G. Smith, M.D., ... Montevideo
Counties—Big Stone, Chippewa, Kandiyohi, Lac Qui Parle, Lincoln, Lyon, Meeker, Pope, Renville, Stevens, Swift, Traverse, Yellow Medicine.

Fourth District

H. J. Nilson, M.D. .... North Mankato
Counties—Blue Earth, Brown, Carver, Le Sueur, McLeod, Nicollet, Redwood, Scott, Sibley, Waseca, Watonwan.

Fifth District

Justus Ohage, M.D. .... Saint Paul
Counties—Anoka, Chisago, Dakota, Isanti, Kanabec, Mille Lacs, Pine, Ramsey, Sherburne, Washington.

Sixth District

O. J. Campbell, M.D. .... Minneapolis
Counties—Hennepin, Wright

Seventh District

W. W. Will, M.D. .... Bertha
Counties—Aitkin, Beltrami, Benton, Cass, Clearwater, Crow Wing, Hubbard, Koochiching, Morrison, Stearns, Todd, Wadena.

Eighth District

W. L. Burnap, M.D. (Deceased) .... Fergus Falls
Counties—Becker, Clay, Douglas, Grant, Kittson, Lake of the Woods, Mahnomen, Marshall, Norman, Otter Tail, Pennington, Polk, Red Lake, Roseau, Wilkin.

Ninth District

A. O. Swenson M.D. .... Duluth
Counties—Carlton, Cook, Itasca, Lake, St. Louis.

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to the
Minnesota State Medical Assocation

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Mrs. Charles W. Waas	*Past President*	Saint Paul
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Mrs. J. C. Buscher	*Auditor*	Saint Cloud
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Health Days—Mrs. W. G. Johanson.........Saint Paul

In Memoriam—Mrs. S. J. Hillis.........Minneapolis

County Society Roster

Key to Symbols: *Deceased; †Affiliate, Associate or Life Members; ‡In Service; §Wife is Member of Woman's Auxiliary.

BLUE EARTH COUNTY MEDICAL SOCIETY

Regular meetings, last Monday of each month
Annual meeting, May
Number of Members: 51

President
Howard, M. I. ....Mankato

Secretary
Chalgren, Wm. S. ....Mankato

‡ Aga, John ....Mankato
Anderson, J. J. ....Mankato
Andrews, R. N. ....Mankato
Batdorf, B. N. ......Good Thunder
§ Butzer, J. A. ....Mankato
§ Chalgren, Wm. S. ....Mankato
§ Conley, R. H. ....Mankato
§†Dahl, G. A. ....Mankato
§ Dahlstet, J. P. ....Mankato
Denman, A. V. ....Mankato
† Edwards, R. T. ....Columbus, Ohio
§ Engstrom, Robert ....Mankato
§ Eustermann, J. J. ....Mankato
§ Franchere, F. Wm. ..Lake Crystal
Fugina, G. R. ....Mankato
§ Geurs, B. R. ....Mankato
§ Haes, J. E. ....Mankato
§ Hammar, L. M. ....Mankato
Hankerson, R. G. ..Minnesota Lake
§ Hassett, R. G. ....Mankato
§ Hoeper, P. G. ....Mankato
Howard, E. G..............Mapleton
§ Howard, M. I. ....Mankato
Huffington, H. L. ....Mankato
§ Jones, O. H. ....Mankato
† Juliar, R. O. ....St. Clair
§ Kaufman, W. B. ....Mankato
§ Kearney, R. W. ....Mankato
§ Keil, M. A. ....Mankato
§ Kemp, A. F. ....Mankato
Koenigsberger, Chas. ......Mankato
§ Langhoff, A. H. ....Mankato
† Liedloff, A. G. ....Mankato
Lindblom, A. E. ......No. Mankato
Luck, Hilda ....Mankato
Mickelson, J. C. ....Mankato
§†Miller, V. I. ....Mankato
Morgan, H. O. ....Amboy
§ Penn, G. E. ....Mankato
§ Samuelson, L. G. ....Mankato
† Schmidt, P. A. ....Monroe, Oregon
Schmitz, A. A. ....Mankato
§ Sjoding, J. D. ....Mankato
Smith, P. M. ....Lake Crystal
§†Sohmer, A. E. ....Mankato
§ Stillwell, W. C. ....Mankato
§ Troost, H. B. ....Mankato
Vezina, J. C. ....Mapleton
Von Drasek, Joseph ......Mankato
† Wentworth, A. G. ....Mankato
Williams, H. O. ......Lake Crystal

BLUE EARTH VALLEY MEDICAL SOCIETY

Regular meetings, third Thursday of each month
Annual meeting in November
Number of Members: 36

President
Zemke, E. E. ....Fairmont

Secretary
Boysen, Herbert ....Madelia

Armstrong, R. S. ......Winnebago
Barr, W. H. ....Wells
§ Blumberg, H. B. ....Fairmont
§ Boysen, Herbert ....Madelia
Burmeister, R. O. ....St. Paul
§ Chambers, W. C. ......Blue Earth
Cooper, M. D. ....Winnebago
Drexler, G. W. ....Blue Earth
† Farrish, R. C. ....Sherburne
§ Gardner, V. H. ....Fairmont
§ Grogan, J. M. ....Ceylon
Hanson, Lewis ....Frost
Heimark, J. J. ....Fairmont
† Holm, P. F. ....Sarasota, Fla.
Hunt, R. C. ....Fairmont
§ Hunt, R. S................Fairmont
† Hunte, A. F. ......Alhambra, Calif.
Krause, C. W. ....Fairmont
Lester, M. J., Jr. ....Truman
McGroarty, J. J. ....Easton
Medlin, C. F. ....Minneapolis
§ Mills, J. L. ....Winnebago
§ Misbach, Wm. D. ....Fairmont
Parsons, R. L. ....Monterey
§ Rollins, T. G. ....**Elmore**
Rowe, W. H. ....Fairmont
§ Russ, H. H. ....**Blue Earth**
Smith, D. V. ....Blue Earth
§ Snyder, C. D. ....Kiester
§ Thayer, E. A. ....**Fairmont**
Vaughan, V. M. ....Truman
§ Virnig, M. P. ....Wells
§ Virnig, R. P. ....Wells
§ Wandke, O. E. ....Fairmont
Wilson, C. E. ....Blue Earth
§ Zemke, E. E. ....Fairmont

BROWN-REDWOOD-WATONWAN MEDICAL SOCIETY

Regular meetings, quarterly
Annual meeting, May
Number of Members: 37

President
Bregel, Fred L. ....St. James

Secretary
Fritsche, C. J. ....New Ulm

Ayres, R. W. .....Little Rock, Ark.
Benton, P. C. ....Minneapolis
Bergman, O. B. ....St. James
§ Black, W. A. ....New Ulm
Bratrude, E. J. ....St. James
Bregel, F. L. ....St. James
Cairns, R. J. ....Redwood Falls
§ Coulter, H. E. ....Madelia
§ Dubbe, F. H. ....New Ulm
§ Dysterheft, A. F. ....Gaylord
* Esser, O. J. ....New Ulm
§ Fesenmaier, O. B. ......New Ulm
‡ Flinn, J. B. ....Pt. Blakely, Wash.
§ Fritsche, Albert ....New Ulm
§ Fritsche, Carl J. ....New Ulm
§ Fritsche, T. R. ....New Ulm
§ Gibbons, F. C. ....Comfrey
§ Glaeser, J. H. ....Gibbon
§ Goblirsch, A. P. ....Sleppy Eye
Hovde, Rolf ....Winthrop
Johnson, A. F. ..Indianapolis, Ind.
Just, H. J. ....Hastings
§ Keithahn, E. E. ....Sleepy Eye
§ Kruzick, S. J. ....Sleepy Eye
§ Kusske, A. L. ....New Ulm
§ Kusske, B. W.........St. Louis Park
§ Mattson, A. D. ....St. James
§ Nelson, G. E. ....Fairfax
Nuessle, W. G. ....Springfield
§ Penk, E. L. ....Springfield
Peterson, R. A. ....Vesta
§†Reineke, G. F. ....New Ulm
§ Saffert, C. A. ....New Ulm
Schroeppel, J. E. ....Winthrop
§ Seifert, O. J. ....New Ulm
§ Vogel, H. A. ....New Ulm
§ Wohlrabe, E. J. ....Springfield

CAMP RELEASE DISTRICT MEDICAL SOCIETY

Chippewa, Lac Qui Parle and Yellow Medicine Counties
Regular meetings, April, May, September and October
Annual meeting, October
Number of Members: 28

President
Burns, F. M. ....Milan
Secretary
Krystosek, L. A. ....Clara City

Anderson, C. A. ....Madison
† Andrejek, A. R. ....Milaca
§ Boody, G. J., Jr. ....Dawson
§ Burns, F. M. ....Milan
§ Burns, M. A. ....Milan
Guilbert, G. D.........Legion, Texas
§ Hartfiel, H. A. ....Montevideo
§ Hauge, M. I. ....Clarkfield
Holmberg, L. J. ....Canby
§ Hudec, E. R. ....Echo
Hudspeth, Wm. T. ....Madison
§ Johnson, C. M. ....Clarkfield
§ Johnson, V. M. ....Dawson
† Jordan, Kathleen .....Granite Falls
Jordan. L. S. ....Granite Falls
Kath, R. H................Woodlake
Kaufman, W. C. ....Appleton
§ Krystosek, L. A. ....Clara City
† Lee, Walter N. ..Claremont, Calif.
§ Lima, L. R., Jr. ......Montevideo
§ Lundell, C. L. ....Granite Falls
Nelson, M. S. ....Granite Falls
§ Owens, W. A. ....Montevideo
Pertl, A. L. ....**Canby**
§ Roust, H. A. ....Montevideo
§ Schmidt, P. G., Jr. ...Granite Falls
§ Smith, L. G. ....Montevideo
§ Westby, Magnus ....Madison

CLAY-BECKER COUNTY MEDICAL SOCIETY

Regular meetings—None
Annual meeting, December
Number of Members: 23

President
Larson, Arnold ......Detroit Lakes

Secretary
Dodds, Wm. C. ......Detroit Lakes

† Aborn, W. H. ....Hawlev
* Bloemendaal, E. J. G. ..Lake Park
Bottolfson, B. T. ....Moorhead
Cedarleaf, Cherry B. ..Detroit Lakes
§ Dodds, Wm. C. ......Detroit Lakes
§ Duncan, J. W. ....Moorhead
Ellingson, A. R. .....Detroit Lakes
Hagen, O. J. ....Moorhead
Humphrey, E. W. ....Moorhead
Ingebrigtson, E. K. Big Springs, Texas
Johnson, Olga H. ....Moorhead
§ Larson, Arnold ....Detroit Lakes
§ Midthune, A. S. ....Lake Park
§ Moberg, C. W. ......Detroit Lakes
Moe, A. E. ....Moorhead
§ Oliver, James ....Moorhead
§ Otto, H. C. ....Frazee
§ Rice, H. G. ....Moorhead
§ Rutledge, L. H. ......Detroit Lakes
Saxman, Gertrude Olsen..Georgetown
Simison, Carl ....Barnesville
Thysell, F. A. ....Moorhead
Thysell, V. D. ....Hawley

EAST CENTRAL MINNESOTA MEDICAL SOCIETY

Anoka, Chisago, Isanti, Kanabec, Mille Lacs, Pine and Sherburne Counties
Regular meetings, first Tuesday of February, April, June, August, October and December
Annual meeting, first Tuesday in December
Number of Members: 43

President
Miller, E. W. ....Anoka

Secretary
Roehlke, A. B. ....Elk River

§ Albrecht H. H. ......Chisago City
Arends, A. L. ....Cokato
Berge, H. L. ....Mora
Beyer, E. F. ....Braham
§ Blomberg, W. R. ....Princeton
Bossert, C. S. ....Mora
§ Bunker, B. W. ....Anoka
Clothier, E. F. ....Elk River
† Dedolph, T. H. ....Braham
Dredge, H. P. ....Sandstone
Engel, R. C. H. ....Cambridge
§ Gully, R. J. ....Cambridge
Halpin, J. E. ....Rush City
§ Hedenstrom, L. H. ......Cambridge
Holmes, A. E. ....Rush City
Hubin, E. G. ....Sandstone
Kapsner, A. T. ....Princeton
Kelsey, C. G. ....Hinckley
Krieser, A. E. ....Anoka
Larson, G. E. ....Cambridge
Lorton, W. L. ....Anoka
Mach, R. F. ....Rush City
Magnuson, R. C. ....Cambridge
March, Kenneth A. ......Cambridge
§ McManus, W. F. ....Princeton
Metcalf, N. B. ....Onamia
§ Miller, E. W. ....Anoka
§ Nordman, W. F. ....Mora
Nygren, W. T. ....Braham
O'Hanlon, J. A. ....Minneapolis
§ Roehlke, A. B. ....Elk River
Sanderson, D. J. ....Princeton
Schlesselman, G. H. ...Minneapolis
§ Sherman, H. T. ....Cambridge
Spurzem, R. J. ....Anoka
* Stephan, E. L. ....Hinckley
§ Stratte, A. K. ....Pine City
§ Swensen, R. G. ......North Branch
§ Tesch, G. H. ....Elk River
* Trommald, Gladys ....Brainerd
Vik, Melvin ....Onamia
† Waller, J. D. ....Pine City
§ Whitney, R. A. ....Cambridge

FREEBORN COUNTY MEDICAL SOCIETY

Regular meetings, every two months, third Thursday
Annual meeting, December
Number of Members: 29

President
Demo, R. A. ....Albert Lea

Secretary
Steiner, L. E. ....Albert Lea

§ Barr, L. C. ....Albert Lea
Burns, Catherine ....Albert Lea
§ Butturff, C. R. ....Freeborn
§†Calhoun, F. W. ....Albert Lea
§ Demo, R. A. ....Albert Lea
§ Donovan, D. L. ....Albert Lea
§ Egge, S. G. ....Albert Lea
§ Erdal, O. A. ....Albert Lea
§ Folken, F. G. ....Albert Lea
† Freeman, J. P. ....Glenville
Freligh, W. P. ....Albert Lea
† Gullixson, A. ......Longmont, Colo.
§ Hansen, T. M. ....Albert Lea
Kaasa, L. J. ....St. Peter
† Kamp, B. A. ....Albert Lea
† Leopard, B. A. ..Brownsville, Texas
Miller, Samuel ....Albert Lea
§ Neel, Harry B. ....Albert Lea
§ Nelson, C. E. ....Albert Lea
Nesheim, M. O. ....Emmons
§ Palmer, C. F. ....Albert Lea
† Palmer, W. L. ....Albert Lea
† Palmerton, E. S. ......Minneapolis
§ Person, J. P. ....Albert Lea
§ Prins, L. R. ....Albert Lea
Schmidt, R. F. ....Alden
§†Schultz, J. A. ....Albert Lea
§ Steiner, L. E. ....Albert Lea
§ Whitson, S. A. ....Albert Lea

GOODHUE COUNTY MEDICAL SOCIETY

Regular meeting date, none
Annual meeting, December
Number of Members: 29

President
Larson, Oliver E. H. ....Zumbrota

Secretary
Hartnagel, G. F. ....Red Wing

Aanes, A. M. ....Red Wing
§ Akins, W. M. ....Red Wing
§ Anderson, S. H. ....Red Wing
§ Bagby, G. W..............Rochester
§ Boswell, J. T. ....Wanamingo
§ Brusegard, J. F. ....Red Wing
§ Claydon, H. F. ....Red Wing
§ Dovenmuehle, R. H. ......Hastings
Flom, M. G. ....Zumbrota
§ Graves, R. B. ....Red Wing
§ Halvorson, J. W. ....Goodhue
§ Hartnagel, G. F. ....Red Wing
§ Hawley, G. M. B., II. ..Red Wing
§ Hedin, R. F. ....Red Wing
Hofmann, G. N. ......Cannon Falls
† Johnson, A. E. ....Minneapolis
† Jones, A. W. ....Red Wing
§ Juers, E. H. ....Red Wing
§ Kimmel, G. C. ....Red Wing
§ Larson, O. E. H. ......Zumbrota
§ Liffrig, W. W. ....Red Wing
§ McGuigan, H. T. ....Red Wing
§ Miller, W. R.............Red Wing
Pfuetze, K. H.........Chicago, Ill
Reitmann, J. H..........Sandstone
§ Sherman, R. V..........Red Wing
† Smith, M. W. ....Red Wing
§ Steffens, L. A...........Red Wing
Williams, M. R........Cannon Falls

HENNEPIN COUNTY MEDICAL SOCIETY

Regular meetings, first Monday of each month
Annual meeting, October, first Monday
Number of Members: 859

President
Erickson, R. F. ....Minneapolis

Secretary
Aling, C. A............Minneapolis

Executive Secretary
Cook, Thomas P. ....Minneapolis

§ Aagaard, George N., Jr..Minneapolis
Abramson, Milton ......Minneapolis
Anderson, A. S. ....Minneapolis
Adams, F. H. ....Minneapolis
† Adkins, C. D. ....Minneapolis
Agustsson, Heidar ......Minneapolis
§ Ahern, E. E. ....Minneapolis
Alexander, H. A.......Minneapolis
Alger, E. W...........Minneapolis
§ Aling, Chas. A. ....Minneapolis
§ Altnow, Hugo O. ....Minneapolis
§ Andersen, S. C. ......Minneapolis
§ Anderson, D. D. ....Minneapolis
Anderson, D. M. ..Fargo, No. Dak.
§ Anderson, E. D. ....Minneapolis
§ Anderson, E. R. ....Minneapolis
§‡Anderson, F. J............... Ft. Leavenworth, Kan.
§ Anderson, K. W. ....Minneapolis
§ Anderson, U. S. ....Minneapolis
Anderson, Wm. H. .....Minneapolis
Anderson, Wm. T. .....Minneapolis
Andreassen, E. C. ......Saint Paul
§ Andresen, K. D'A ......Minneapolis
§ Andrews, R. S. ....Minneapolis
Ankner, F. J. ....Minneapolis
§ Arey, Stuart L. ....Minneapolis
§ Arlander, C. E. ....Minneapolis
§ Arling, L. S. ....Minneapolis
Arnold, Anna W. ......Minneapoils
* Arnold, D. C. ....Minneapolis
§ Arvidson, C. G. ....Minneapolis
§†Aune, Martin ....Minneapolis
† Aurand, Wm. H. ....Minneapolis
Baird, J. W. ....Minneapolis
§ Baken, M. P. ....Minneapolis
Baker, A. B. ....Minneapolis
Baker, A. T. ....Minneapolis
§*Baker, E. L. ....Minneapolis
† Baker, Looe ....Minneapolis

§ Baker, M. E. ....Minneapolis
§ Balkin, S. G. ....Minneapolis
Bank, H. E. ....Portland, Ore.
* Barber, J. P. ....Minneapolis
Barno, Alex ....Minneapolis
§ Barr, M. M. ....Minneapolis
Barr, R. N. ....Minneapolis
‡ Barron, J. J. ...Camp McCoy, Wis.
§ Barron, Moses ....Minneapolis
Barron, S. S. ....Minneapolis
§†Baxter, Stephen H. ....Minneapolis
§ Beach, Northrop ....Minneapolis
† Beard, A. H. ....Wayzata
† Becker, A. M. ....Minneapolis
§ Bedford, E. W. ....Minneapolis
Beirstein, Saml. ....Minneapolis
§ Beiswanger, R. H. ......Minneapolis
† Bell, E. T. ....Minneapolis
§ Bellville, T. P. ....Minneapolis
§ Belzer, M. S. ....Minneapolis
Benesh, L. A. ....Minneapolis
§†Benjamin, A. E. ....Minneapolis
§ Benjamin, E. G. ....Minneapolis
§ Benjamin, H. G.........Minneapolis
*†Benn, F. G. ....La Mesa, Calif.
Berg, C. C. ....Excelsior
Berger, A. G. ....Minneapolis
§ Bergh, G. S. ....Minneapolis
Bergh, S. M. ....Minneapolis
§ Berkwitz, N. J. ....Minneapolis
Berman, Reuben ....Minneapolis
§ Bessesen, A. N., Jr. ....Minneapolis
§ Bessesen, D. H. ....Minneapolis
Bessesen, Wm. A. .....Minneapolis
Bieter, R. N. ....Minneapolis
Bilka, P. J. ....Minneapolis
Binder, M. R. ....Minneapolis
§ Blake, A. J. ....Hopkins
† Blake, James ....Hopkins
§ Blake, James A. ....Hopkins
§†Blake, Paul S. ....Hopkins
§ Bloedel, T. J. G. ....Osseo
§ Bloom, N. B. ....Minneapolis
§ Blumenthal, J. S. ......Minneapolis
Bockman, M. W. H. ....Minneapolis
§‡Bodelson, A. H. ..Pensacola, Fla.
§Boehrer, J. J., Jr. ......Minneapolis
§ Bofenkemp, Benj. ......Minneapolis
§ Bohn, D. G. ....Minneapolis
§ Boies, L. R. ....Minneapolis
† Booth, A. E. ....Minneapolis
Borden, C. W. ....Minneapolis
Boreen, C. A. ....Minneapolis
§ Borgeson, E. J. ....Minneapolis
Borman, C. N. ....Minneapolis
§ Bowers, G. G. ....Minneapolis
Boynton, R. E. ....Minneapolis
§ Bratrud, A. F. ....Minneapolis
† Breitenbucher, R. B. ...Minneapolis
§ Brekke, Harvey J. .....Minneapolis
Brill, Alice K. ....Minneapolis
Brooks, C. N. ....Minneapolis
† Brown, E. D. ....Paynesville
Brown, Wm. D. ....Minneapolis
Brutsch, G. C. ....Minneapolis
§ Buchstein, H. F. ....Minneapolis
§ Buirge, R. E. ....Minneapolis
Bulkley, Kenneth ......Minneapolis
§ Burnham, W. H. ....Minneapolis
§ Bushard, W. J. ....Minneapolis
§ Buzzelle, L. K. ....Minneapolis

§ Cable, M. L. ....Minneapolis
§ Cabot, C. M. ....Minneapolis
§ Cabot, V. S. ....Minneapolis
Cady, L. H. ....Minneapolis
Cameron, Isabell L. ....Minneapolis
Campbell, L. M. ....Minneapolis
§ Campbell, O. J. ....Minneapolis
§ Caplan, Leslie ....Minneapolis
Card, Wm. H. ....Minneapolis
§*Cardle, A. E. ....Minneapolis
§ Carey, J. B. ....Minneapolis
Carlander, L. W., Jr.....Minneapolis
§ Carlson, Lawrence .....Minneaposli
§ Carlson, L. T. ....Minneapolis
§ Caron, R. P. ....Minneapolis
§ Caspers, Carl G. ....Minneapolis
§ Cavanor, F. T. ....Minneapolis
§ Ceder, E. T. ....Minneapolis
§ Challman, S. A. ....Minneapolis
Chapman, C. B. ....Minneapolis
Chesley, A. J. ....Saint Paul
§ Chisholm, T. C. ....Minneapolis
Christensen, L. E. ......Minneapolis
§ Christianson, H. W. ....Minneapolis
Clarke, E. K. ....Minneapolis
§ Clay, L. B. ....Minneapolis
§ Cochrane, R. F. ....Minneapolis
Coe, John I. ....Minneapolis
§ Cohen, B. A. ....Minneapolis
Cohen, E. B. ....Minneapolis
Cohen, M. M. ....Minneapolis
§ Cohen, S. S. ....Oak Terrace
Colp, E. A...............Minneapolis

Condit, Wm. H. ....Minneapolis
§ Cooper, J. P. ....Excelsior
† Corbett, J. F. ....Minneapolis
Corniea, A. D. ....Minneapolis
§ Correa, D. H. ....Minneapolis
Cowan, D. W. ....Minneapolis
Craig, M. Elizabeth ....Minneapolis
§ Cranmer, R. R. ....Minneapolis
Cranston, R. W. ....Minneapolis
§ Creevy, C. D. ....Minneapolis
§ Creighton, R. H. ......Minneapolis
§ Culligan, L. C. ....Minneapolis
§ Cundy, D. T. ....Minneapolis
† Cutts, George ....Minneapolis
Dady, E. E. ....Minneapolis
§ Dahl, E. O. ....Minneapolis
§ Dahl, J. A. ....Minneapolis
§ Daniel, D. H. ....Minneapolis
§ Dargay, C. P. ....Minneapolis
§ Davis, J. C. ....Minneapolis
§Davis, Wm. I. ....Mound
§ Del Plaine, C. W. .....Minneapolis
Dennis, Clarence ....Minneapolis
§ Devereaux, T. J. ....Wayzata
§ Diehl, Harold S. ......Minneapolis
Diessner, H. D. ....Minneapolis
§ Dorge, R. I. ....Minneapolis
Dornblaser, H. B. ......Minneapolis
§ Dorsey, Geo. C. ....Minneapolis
Dowidat, R. W. ....Minneapolis
Doxey, G. L. ....Minneapolis
§ Doyle, L. O. ....Minneapolis
§ Drake, C. R. ....Minneapolis
§‡Dredge, T. E...San Francisco, Calif.
§ Drill, H. E. ....Hopkins
§ Duff, Edwin R. ....Minneapolis
§ Dunlap, E. H. ....Minneapolis
§ Dupont, J. A. ....Excelsior
* Dumas, A. G. ....Minneapolis
§ Duryea, W. M. ....Minneapolis
§†Dutton, C. E. ....Minneapolis
§ Dvorak, B. A. ....Minneapolis
§ Dwan. Paul F. ....Minneapolis
§ Dworsky, S. D. ....Minneapolis
Eckles. Nylene ....Minneapolis
§ Ehrenberg, C. J. ....Minneapolis
§ Ehrlich, S. P. ....Minneapolis
§ Eich, M. A. ....Minneapolis
Eisenstadt, D. H. ......Minneapolis
§ Eisenstadt, Wm. S......Minneapolis
§ Eitel, George D.........Minneapolis
§ Ellison, D. E. ....Minneapolis
§ Emond, A. J. ....Farmington
Emond, J. S. ....Farmington
§ Engelhart, P. C. ......Minneapolis
§†Englund, E. F. ....Minneapolis
§ Engstrand, O. J. ......Minneapolis
§ Erickson, C. O. ....Minneapolis
§ Erickson, L. F. ....Minneapolis
§ Erickson, R. F. ....Minneapolis
§ Ericson, R. M. ....Minneapolis
§ Evans, E. T. ....Minneapolis
Fahr, Geo. E. ....Minneapolis
§ Fansler, W. A. ....Minneapolis
Feeney, J. M. ....Minneapolis
Feigal, D. W. ....Wayzata
§ Feinstein, J. Y. ....Minneapolis
§ Fenger, E. P. K. ......Oak Terrace
§ Fingerman, D. L. ......Minneapolis
§ Fink, Leo Wm. ....Minneapolis
§ Fink, Walter H. .....Minneapolis
§ Fisher, Isadore I. .....Minneapolis
† Fitzgerald, D. F. ....Wayzata
§ Fjeldstad, C. A. ....Minneapolis
Flagg, G. B. ....Minneapolis
§ Fleeson, Wm. H. ......Minneapolis
† Fleming, A. S. ....Minneapolis
Fleming. D. S. ....Minneapolis
Fliehr, R. R. ....Minneapolis
Flink, E. B. ....Minneapolis
‡ Floersch, A. J. ......Seattle, Wash.
§ Foker, L. W. ....Minneapolis
§ Folsom, L. B. ....Minneapolis
§ Ford, Wm. H. ....Minneapolis
§ Foster, O. W. ....Minneapolis
§ Fowler, L. H. ....Minneapolis
§ Fox, James R. ....Minneapolis
§ Frane, D. B. ....Minneapolis
Frear, Rosemary R.....Minneapolis
§ Fredericks, G. M. ......Minneapolis
§*Fredlund, M. L. ....Minneapolis
§ Freeman, Craig ....Minneapolis
Freeman, D. W. ......Minneapolis
§ French, Lyle A. ....Minneapolis
§ Fried, Louis A. ....Minneapolis
§ Friedell, Aaron ....Minneapolis
§ Friedman, Harry S. ....Minneapolis
Friedman, Jack ....Minneapolis
‡ Friend, Chas. A. .... Ft. Leonard Wood, Mo.
Frisch, D. C. ....Minneapolis
§ Frost, J. B. ....Minneapolis
§ Frost, R. H. ....Oak Terrace
Frykman, H. M. ....Minneapolis
Fuller, Alice H. ....Minneapolis

§ Funk, Victor K.........Oak Terrace
Furman, Lucie C. .....Minneapolis
† Galligan, Margaret, M.D. Minneapolis
§ Galloway, J. B. ....Minneapolis
§ Gammell, J. H. ....Minneapolis
Garske, G. L. ....Minneapolis
Garten, J. L. ....Minneapolis
§ Gaviser, David ....Minneapolis
§ Gibbs, Robert W.......Minneapolis
§ Giebenhain, J. N. .....Minneapolis
§ Giebink, R. R. ....Fargo, No. Dak.
§ Giere, J. C. ....Minneapolis
§ Giere, R. W. ....Minneapolis
† Giessler, P. W. ....Minneapolis
Gilbert, M. G. ....Minneapolis
Gingold, B. A. ....Minneapolis
Girvin, R. B. ....Minneapolis
§ Goldberg, I. M. ....Minneapolis
§ Goldman, T. I. ....Minneapolis
§ Goldner, M. Z. ....Minneapolis
§ Good, H. D. ....Minneapolis
Gordon, P. E. ....Minneapolis
Gordon, S. S. ....Minneapolis
§ Grais, M. L. ....Minneapolis
§ Gratzek, F. R. E........Minneapolis
§ Grave, Floyd ....Minneapolis
Gray, Royal C. ....Minneapolis
Green, R. A. ....Minneapolis
§ Greenberg, A. J. ....Minneapolis
Greenfield, Irving ......Minneapolis
† Greishiemer, Esther M......... Philadelphia, Pa.
Grimes, Marian ....Minneapolis
§ Gronvall, P. R. ....Minneapolis
§ Grotting, J. K. ....Minneapolis
§ Gunlaugson, F. G. ......Minneapolis
§ Gushurst, E. G. ....Minneapolis
§ Gustason, H. T. ....Minneapolis
Haberer, Helen R........Minneapolis
Hagen, Paul S............Saint Paul
§ Hagen, W. S. ....Minneapolis
† Haggard, G. D. ....Minneapolis
§ Hall, A. M. ....Minneapolis
§ Hall, H. B. ....Minneapolis
§ Hall, W. H. ....Minneapolis
Hallberg, C. A. ....Minneapolis
§ Hannah, H. B. ....Minneapolis
§ Hansen, C. O. ....Minneapolis
§ Hansen, E. W. ....Minneapolis
Hansen, O. S. ....Minneapolis
Hansen, R. M. ....Minneapolis
§ Hanson, H. J..........Minneapolis
Hanson, H. V. ....Minneapolis
§ Hanson, M. B. ....Minneapolis
§ Hanson, Wm. A. H. ....Minneapolis
§ Happe, Lawrence J......Minneapolis
Harris, L. D...........Minneapolis
§*Hart, Vernon L........Minneapolis
§ Hartig, Hermina A. ....Minneapolis
† Hartzell, Thos. B.......Minneapolis
Hass, F. M. ....Minneapolis
§ Hastings, DeF. R.......Minneapolis
§ Hastings, D. W. ....Minneapolis
§ Hauge, Erling T........Minneapolis
§ Haugen, Geo. W........Minneapolis
Haugen, John A.........Minneapolis
Hauser, G. W. ....Minneapolis
Havel, Robert J.........Minneapolis
§ Haven, Walter K.......Minneapolis
§ Hawkinson, R. P. ......Minneapolis
§ Hayes, James M........Minneapolis
§ Hays, Albert T. ....Minneapolis
§ Head, Douglas P. .....Minneapolis
§ Hebbel, Robert ....Minneapolis
† Hedback, Axel A. .....Minneapolis
Heim, Russell R.........Minneapolis
Heisler, J. J. ....Minneapolis
Heller, Ben I. ....Minneapolis
† Hendrickson, J. F. .....Minneapolis
§ Henrikson, E. C..........Minneapolis
† Henry, C. E. ....Kirksville, Mo.
Henry, M. O. ....Minneapolis
Herbert, W. L. ....Minneapolis
Hermann, H. W. ......Minneapolis
Hesdorffer, M. B. ......Minneapolis
§†Higgins, J. H. ....Minneapolis
§ Hill, Earl ....Minneapolis
Hill, Elmer M. ....Minneapolis
§†Hillis, S. J......East Bradenton, Fla.
Hinckley, R. G. ....Minneapolis
§ Hirshfield, F. R. ....Minneapolis
† Hitchcock, C. R. ....Minneapolis
† Hoaglund, A. W..Los Angeles, Calif.
Hoffbauer, F. W. ......Minneapolis
§ Hoffert, H. E. ....Minneapolis
§ Hoffman, R. A. ....Minneapolis
§ Hoffman, W. L. ....Minneapolis
§ Holmberg, C. J. ....Minneapolis
§ Holzapfel, F. C. ....Minneapolis
Horns, H. L. ....Minneapolis
§ Horns, R. C. ....Minneapolis
† Houkom, Bjarne .... Luskoto, T.T.E. Africa
Hovland, M. L. ....Minneapolis
§ Howard, S. E. ....Minneapolis

Hudson, George E. .....Minneapolis
§ Huenekens, E. J. ......Minneapolis
§†Hultkrans, J. C..........Minneapolis
§ Hultkrans, R. E.........Minneapolis
† Hurd, Annah ....Minneapolis
‡ Hutchinson, C. J., So. Boston, Mass.
Hutchinson, D. W. ....Oak Terrace
§ Hymes, Chas. ....Minneapolis
† Hynes, John E. ....Minneapolis
§ Idstrom, L. G..........Minneapolis
Ingalls, Edgar G., Jr. ..Minneapolis
Irvine, H. G. ....Minneapolis
§ Iverson, R. M. ....Minneapolis
§ Jacobson, W. E. ....Minneapolis
§ James, E. M..............Saint Paul
§ Jensen, H. C. ....Minneapolis
§†Jensen, M. J. ....Minneapolis
§ Jensen, N. K. ....Minneapolis
Jensen, R. A. ....Minneapolis
Jerome, Bourne ....Minneapolis
§ Johnson, A. B. ....Minneapolis
§ Johnson, A. E. ....Minneapolis
§ Johnson, E. W. ....Minneapolis
§ Johnson, H. A. ....Minneapolis
§ Johnson, J. A. ....Minneapolis
§ Johnson, J. W. ....Minneapolis
Johnson, Julius ....Minneapolis
§ Johnson, M. R..........Minneapolis
*†Johnson, N. A. ....Minneapolis
Johnson, N. P. ....Minneapolis
§ Johnson, N. T. ....Minneapolis
Johnson, Reinald G. ....Minneapolis
§ Johnson, Reuben A. ....Minneapolis
§ Johnson, Robert E. .....Minneapolis
Johnson, Y. T. ....Minneapolis
§†Jones, H. W., Jr........Minneapolis
§ Jones. W. R. ....Minneapolis
Josewich, Alexander ....Minneapolis
§ Judd, W. H. ....Washington, D. C.
§ Jurdy, M. J. ....Minneapolis
§ Kalin, O. T. ....Minneapolis
§ Kaplan, J. J. ....Minneapolis
§ Karleen, C. I. ....Minneapolis
Karlstrom, A. E. ....Minneapolis
§ Kaufman, H. J. ....Minneapolis
§ Kelby, G. M. ....Minneapolis
§ Kelly, J. P. ....Minneapolis
§ Kennedy, C. C. ....Minneapolis
† Kennedy, Jane F. ......Minneapolis
§ Kerkhof, A. C. ....Minneapolis
Kertesz, Geza, J. V. ....Minneapolis
Kiesler, Frank, Jr. .....Minneapolis
† King, E. A. ....Minneapolis
King, F. W. ....Oak Terrace
§ Kinsella, T. J. ....Minneapolis
§ Kistler, A. J. ....Minneapolis
§ Knapp, M. E. ....Minneapolis
§ Knight, R. T. ....Minneapolis
Knight, R. R. ....Minneapolis
Knudsen, Helen L. .....Minneapolis
§ Koepcke, G. M. ....Minneapolis
§ Koller, H. M. ....Minneapolis
Koller, L. R. ....Minneapolis
Korchik, J. P. ....Minneapolis
Kottke, F. J. ....Minneapolis
§ Koucky, R. W. ....Minneapolis
§ Kremen, A. J. ....Minneapolis
§ Kucera, F. J. ....Hopkins
§ Kucera, Wm. J. ....Minneapolis
LaBree, J. W. ....Minneapolis
§ LaGaard, S. M. ....Minneapolis
Lajoie, J. M. ....Minneapolis
§ Lang, L. A. ....Minneapolis
§ Lapierre, A. P. ....Minneapolis
Lapierre, J. T. ....Minneapolis
§ Larsen, F. W. ....Minneapolis
§ Larson, C. M. ....Minneapolis
§ Larson, L. M. ....Minneapolis
§ Larson, Leonard M. ....Oak Terrace
§ Larson, P. N. ....Minneapolis
Larson, R. H. ....Anoka
§ LaVake, R. T...........Minneapolis
§ Law, S. G. ....Minneapolis
§ Laymon, C. W...........Minneapolis
† Lazar, H. L. ....Excelsior
† Leavitt, H. H. ......Phoenix, Ariz.
Lebowske, J. A. ....Minneapolis
§ Lecklitner, M. D.........Minneapolis
§ Leemhuis, A. J. ....Minneapolis
§ Leland, H. R. ....Minneapolis
§ Lengby, F. A...........Minneapolis
§ Lenz, Otto A. ....Minneapolis
§ Leonard, L. J. ....Minneapolis
§ Leonard, Saml. ....Minneapolis
Lerner, A. R. ....Minneapolis
Lewis, F. J. ....Minneapolis
Lillehei, E. J. ....Robbinsdale
‡ Lind, C. J., Jr.................
Ft. Sam Houston, Texas
Lind, Carl J. ....Minneapolis
Lindberg, A. C. ....Minneapolis
§ Lindberg, V. L. ....Minneapolis
† Lindberg, W. R. ....Minneapolis
§ Lindgren, R. C. ....Minneapolis
§ Lindquist, R. H. .....Minneapolis

§ Linner, Gunnar ....Minneapolis
§ Linner, Henry P. ......Minneapolis
§†Linner, John H. ......Minneapolis
Linner, Paul W. ......Minneapolis
Lippman, E. S. ....Minneapolis
§ Lipschultz, Oscar ......Minneapolis
§ Litchfield, J. T. ....Minneapolis
Litman, A. B. ....Minneapolis
§ Lofsness, S. V. ....Minneapolis
§ Logefeil, R. C. O.......Minneapolis
§ Loomis, E. A...........Minneapolis
§ Lott, F. H. ....Minneapolis
Lovett, Beatrice R......Oak Terrace
Lowry, Elizabeth C......Minneapolis
Lowry, Thomas ....Minneapolis
Lueck, W. W. ....Minneapolis
§ Lufkin, N. H. ....Minneapolis
Lundberg, Ruth I.......Minneapolis
Lundblad, R. A........Minneapolis
Lundblad, S. W. ....Minneapolis
§ Lundgren, A. C. ....Minneapolis
§ Lundquist, E. F. ....Minneapolis
Lundquist, V. J. P. ....Minneapolis
† Lynch, M. J. ....Minneapolis
Lysne, Henry ....Minneapolis
§ Lysne, Myron ....Minneapolis
† MacDonald, A. E. ......Minneapolis
§ MacDonald, D. A. ....Minneapolis
§ Mach, Frank B. ....Minneapolis
§ MacKinnon, D. C. .....Minneapolis
† Macnie, John S.........Minneapolis
§ Maeder, E. C. ....Minneapolis
§ Maland, C. O. ....Minneapolis
§†Maloney, Wm. F. ......Oak Terrace
§ Mankey, J. C. ....Minneapolis
§*Mariette, E. S. ....Oak Terrace
§ Marking, G. H. ....Minneapolis
§‡Martin, Geo. R..Camp McCoy, Wis.
Martinson, C. J. ....Wayzata
Martinson, E. J. ....Wayzata
† Matcham, G. R. ....Saint Paul
§ Mattill, P. M. ....Oak Terrace
§ Mattson, H. A. N. .....Minneapolis
§ Maxeiner, S. R. ....Minneapolis
§ McCaffrey, F. J. ......Minneapolis
McCann, E. J. ....Minneapolis
McCannel, M. A.........Minneapolis
McCarthy, Donald .....Saint Paul
McCartney, J. S. ......Minneapolis
§ McCormick, D. P. ......Minneapolis
‡ McCrimmon, H. P...Cleveland, Ohio
† McDaniel, Orianna .....Minneapolis
§ McFarland, A. H. .....Minneapolis
§ McGandy, R. F.........Minneapolis
§ McGeary, G. E. ....Minneapolis
§ McInerny, M. W. ......Minneapolis
McKelvey, J. L. ....Minneapolis
§ McKenzie, C. H. ....Minneapolis
§ McKinlay, C. A. ......Minneapolis
§ McKinney, F. S. ....Minneapolis
§ McLaughlin, B. H. .....Minneapolis
§ McMurtrie, Wm. B. ...Minneapolis
§ McPheeters, H. O. .....Minneapolis
† McQuarrie, Irvine .....Minneapolis
§ Meller, R. L. ....Minneapolis
§ Merkert, C. E. ....Minneapolis
§ Merkert, G. L..........Minneapolis
† Merrick, C. T. ....Saint Paul
† Merrill, Elizabeth ......Minneapolis
§ Meyer, A. J. ....Minneapolis
§ Meyer, Ette L...........Minneapolis
Michael, J. C. ....Minneapolis
§ Michel, H. H. ....Minneapolis
§ Michelson, H. E. ......Minneapolis
† Mickelsen, Emma F. ...Minneapolis
§ Miller, A. L............Minneapolis
§ Miller, H. E. ....Minneapolis
§ Miller, Hugo E.........Minneapolis
§ Miller, J. C. ....Minneapolis
§ Milton, J. S. ....Minneapolis
§ Minsky, A. A. ....Minneapolis
§ Mitchell, B. D. ....Minneapolis
Mitchell, E. C. ....Minneapolis
§ Mitchell, M. T. ....Minneapolis
§ Mixer, Harry W. .....Minneapolis
§ Moe, John H. ....Minneapolis
§ Moehn, John T. ....Minneapolis
§ Moen, J. K., Jr. ....Minneapolis
† Monahan, Elizabeth S. ..Minneapolis
§ Monson, E. M. ....Minneapolis
Moore, I. H. ....Minneapolis
Moorhead, Marie ....Minneapolis
§ Moos, Daniel J. ....Minneapolis
† Moren, Edward ....Minneapolis
§ Mork, A. H. ....Anoka
§ Mork, Frank E. ....Anoka
Morrison, C. J. ....Minneapolis
Morse, R. W. ....Minneapolis
§‡Mulholland, Wm. M. ....
Camp Atterbury, Ind.
Murphy, E. P. ....Minneapolis
§ Musty, N. J. ....Minneapolis
Myers, J. A. ....Minneapolis
§ Myhre, James A........Minneapolis
§ Naslund, A. W. ....Minneapolis

§ Neal, Joe M. ....Minneapolis
§ Neary, R. P. ....Minneapolis
Nelson, C. B. ....Minneapolis
§ Nelson, E. N. ....Minneapolis
§ Nelson, Harvey ....Minneapolis
† Nelson, H. S. ....Los Angeles, Cal.
§ Nelson, L. S. ....Minneapolis
§ Nelson, M. C. ....Minneapolis
§ Nelson, O. L. N. ......Minneapolis
§ Nelson, W. I. ....Minneapolis
§ Nesbitt, Saml. ....Minneapolis
§ Nesset, L. B. ....Minneapolis
§ Nesset, Wm. D. ....Minneapolis
Noonan, Wm. J. ....Minneapolis
Noran, A. S. N. ......Minneapolis
§ Noran, H. H. ....Minneapolis
§ Nord, R. E. ....Minneapolis
§ Nordin, G. T. ....Minneapolis
§ Nordland, Martin, Jr. ...Minneapolis
§ Nordland, Martin ......Minneapolis
§†Noth, H. W. ....Minneapolis
§ Nydahl, M. J. ....Minneapolis
§ Nylander, E. G. ....Minneapolis
† Nystrom, Ruth G. ....
Malibu Beach, Calif.
O'Donnell, J. E. ....Minneapolis
§†Oberg, Carl M. ....Minneapolis
§ Olsen, Edw. G. ....Minneapolis
§ Olson, Alton C. ....Minneapolis
§†Olson, B. G. ....Minneapolis
Olson, C. K. ....Minneapolis
Olson, J. W. ....Minneapolis
† Olson, Olof A. ....Minneapolis
§ Oppen, E. G. ....Minneapolis
*†Owre, Oscar ....Minneapolis
§ Palen, B. J. ....Minneapolis
Papermaster, T. C. .....Minneapolis
§ Peluso, C. R. ....Minneapolis
§ Peppard, Thos. A. .....Minneapolis
§ Perlman, E. C. ....Minneapolis
§ Petersen, G. L. ....Minneapolis
§†Petersen, John R. ......Minneapolis
Petersen, P. C. ....Minneapolis
Peterson, Wm. E.........Minneapolis
§ Peterson, H. W. ....Minneapolis
§ Peterson, L. J. ....Reno, Nevada
Peterson, N. P. ....Minneapolis
Peterson, O. H. ....Minneapolis
§ Peterson, O. H., Jr. ...Minneapolis
§ Peterson, P. E. ....Minneapolis
§ Peterson, W. C. ....Minneapolis
Peterson, W. Henry ....Minneapolis
§ Petit, J. V. ....Minneapolis
§ Petit Leon J. ....Minneapolis
§ Pewters, J. T. ....Minneapolis
§ Peyton, Wm. T. ....Minneapolis
§ Pfunder, M. C. ....Minneapolis
§ Phelps, K. A. ....Minneapolis
§ Plass, H. F. R. ....Minneapolis
§ †Platou, E. S. ....Minneapolis
§ Pleissner, K. W.......St. Louis Park
§ Plimpton, N. C., Jr.....Minneapolis
§ Pohl, John F. M. ......Minneapolis
§ Pollard, D. W. ....Minneapolis
§ Pollock, D. K. ....Minneapolis
§ Polzak, J. A. ....Minneapolis
Poppe, F. H. ....Minneapolis
Potter, R. B. ....Minneapolis
§ Pratt, F. J., Jr. ....Minneapolos
† Pratt, F. J., Sr. ....Minneapolis
Preine, I. A. ....Minneapolis
§ Preston, Paul James ....Minneapolis
§ Priest, Robt. E. ....Minneapolis
§†Prim, Jos. A. ....Minneapolis
§ Proffitt, Wm. E. ....Minneapolis
§ Proshek, C. E. ....Minneapolis
§ Ouello, R. O. B. ....Minneapolis
§†Quist, Henry W. ....Minneapolis
§ Quist, H. W., Jr. .....Minneapolis
§ Ranson, H. R. ....Osseo
§ Reader, D. R. ....Minneapolis
§ Regan, J. J. ....Minneapolis
§ Regnier, Edw. A. ......Minneapolis
Reid, Lewis M. ....Excelsior
§ Reif, H. A. ....Minneapolis
§ Reiley, R. E. ....Minneapolis
§ Resch, J. A. ....Minneapolis
§ Rice, Carl O. ....Minneapolis
Rice, Frank B. ....Minneapolis
Rice, Fred A. ....Minneapolis
Richdorf, L. F..........Minneapolis
§ Rieke, W. W..............Wayzata
Rigler, Leo G. ....Minneapolis
Riordan, Elsie M. ......Minneapolis
§ Risch, R. E. ....Minneapolis
Rizer, D. K. ....Minneapolis
Rizer, R. I. ....Minneapolis
Robb, Edwin F. ....Minneapolis
§ Robbins, O. F. ....Minneapolis
§ Roberts, L. J. ....Minneapolis
§ Roberts, S. W. ....Minneapolis
§†Roberts, Wm. B........Minneapolis
Rocknem, R. E..........Minneapolis
§ Rockwell, C. V. ....Minneapolis
§†Rodda, Fredk. C........Minneapolis

§ Rodgers, R. S. ....Minneapolis
§ Rosendahl, F. G. ....Minneapolis
§ Rosenfield, A. B. ......Minneapolis
§ Rosenow, J. H. ....Minneapolis
§ Rosenwald, R. M. .....Minneapolis
§ Ross, A. J. ....Minneapolis
§ Rossen, R. X. ....Hastings
§ Rucker, Wm. H. ......Minneapolis
Rud, Norman E. ....Minneapolis
Rudell, G. L. ....Minneapolis
§ Russeth, A. N. ....Minneapolis
§ Rusten, E. M. ....Minneapolis
§ Rydburg, W. C. ....Minneapolis
§‡St. Cyr, Harry W., Jr. ....
Camp McCoy, Wis.
§ St. Cyr, K. J. ....Robbinsdale
§ Sadler, Wm. P., Jr. ....Minneapolis
§ Saliterman, B. I. ....Minneapolis
§ Samuelson, Saml. ......Minneapolis
§ Sandt, Karl E. ....Minneapolis
§ Sanford, R. A. ....Minneapolis
§ Sawatzky, Wm. A. ....Minneapolis
§‡Sborov, A. M....Fort McClellan, Ala.
§ Schaaf, F. H. K. ......Minneapolis
† Schaar, F. E. ....Minneapolis
§ Schaefer, W. G. ....Minneapolis
† Scheldrup, N. H. ....Minneapolis
§ Scherer, L. R. ....Minneapolis
§ Scherling, S. S. ....Minneapolis
§ Schiele, B. C. ....Minneapolis
§ Schmidt, G. F. ....Minneapolis
† Schmitt, S. C. ......San Diego, Cal.
*†Schneider, J. P. ....Minneapolis
† Schneider, R. A. ..New York, N. Y.
§ Schottler, M. E.........Minneapolis
§ Schroeder, A. J. ....Minneapolis
§ Schultz, J. H. ....Minneapolis
Schultz, P. J. ....Minneapolis
§ Schulze, Wm. M. ......Minneapolis
§ Schwartz, V. J. ....Minneapolis
*†Schwyzer, Gustav ......Minneapolis
† Scott, F. H. ....Minneapolis
§ Scott, H. G. ....Minneapolis
§ Seaberg, J. A. ....Minneapolis
§†Seashore, Gilbert ....Minneapolis
† Segal, M. A. ....Minneapolis
§ Seifert, M. H. ....Excelsior
§ Seljeskog, S. R. ....Minneapolis
§ Semsch, R. D............Minneapolis
§ Shandorf, J. F. ....Minneapolis
Shaperman, Eva P. ....Minneapolis
Shapiro, M. J. ....Minneapolis
Shapiro, S. K. ....Minneapolis
Sharp, D. V. ....Minneapolis
Shaw, H. A. ....Minneapolis
§ Shea, A. W. ....Minneapolis
Sher. Lewis ....Minneapolis
§ Sherman, L. F. ....Minneapolis
§ Shronts, J. F. ....Minneapolis
§ Siegmann, Wm. C. .....Minneapolis
Silver, J. D. ....Minneapolis
§†Simons, J. H. ....Minneapolis
§ Simonson, D. B. ......Minneapolis
Simpson, E. De W......Minneapolis
Sinykin. M. B. ....Minneapolis
Siperstein, D. M. .....Minneapolis
§ Sisterman, T. J. ....Minneapolis

† Sivertsen, Andrew ......Minneapolis
§†Sivertsen, Ivar ....Minneapolis
§ Skjold, A. C. ....Minneapolis
Smiley, J. T. ....Minneapolis
§ Smisek, F. M. E. .....Minneapolis
Smith, Adam M. ....Minneapolis
§ Smith, Archie M. ......Minneapolis
§ Smith, Baxter A., Jr....Minneapolis
§ Smith, G. G. ....Minneapolis
Smith, Homer R. ......Minneapolis
† Smith, Margaret I. .....Robbinsdale
Smith, Marie A. ......Minneapolis
§ Smith, Norman M. .....Minneapolis
§ Smith, Norvin R. ......Minneapolis
§ Smith, Theo. S. ....Minneapolis
Soderling, R. T. ....Minneapolis
§ Solhaug, Saml. B. .....Minneapolis
§ Solvason, H. M. ......Minneapolis
§ Spano, Jos. P. ....Minneapolis
§ Spink, W. W. ....Minneapolis
Sponsel, K. H. ....Minneapolis
† Spratt, Chas. N.........Minneapolis
§ Stahr, A. C. ....Hopkins
§ Stanford, C. E. ....Minneapolis
§ State, David ....Minneapolis
‡ Staub, H. P..Ft. Leonard Wood, Mo.
Stein, K. E. ....Lakeville
§ Stelter, L. A. ....Minneapolis
§‡Stennes, J. L..Camp Atterbury, Ind.
Stewart, M. J. ....Minneapolis
Stewart, Rolla I. ....Minneapolis
‡ Stiegler, F. S..Nurenberg, Germany
§ Stoesser, A. V. ....Minneapolis
† Stomel, Joseph ..Los Angeles, Calif.
§ Stone, S. P. ....Minneapolis
† Strachauer, A. C. ......Minneapolis
§ Strickler, J. H. ....Minneapolis
§ Strom, G. W. ....Minneapolis
Stromgren, D. T. ......Minneapolis
§ Stromme, Wm. B. ......Minneapolis
§ Sturges, R. L. ....Minneapolis
§†Subby, Walter ....Minneapolis
Sukov, Marvin ....Minneapolis
§ Swanson, R. E. ....Minneapolis
† Swanson, V. F..Los Angeles, Calif.
§ Sweetser, H. B., Jr. ....Minneapolis
§ Sweetser, T. H. ....Minneapolis
† Swetzer, S. E. ....Minneapolis
§†Swendseen, C. G. ....Minneapolis

§ Tangen, G. M...........Minneapolis
Taylor, Jos. H. ....Minneapolis
§ Tenner, R. J. ....Minneapolis
§ Terry, Wm. S. ....Minneapolis
§ Thomas, Geo. E.......Minneapolis
† Thomas, Geo. H. ....Minneapolis
Thomes, A. Boyd ......Minneapolis
§ Thompson, W. H. .....Minneapolis
Thomson, J. M. ....Minneapolis
§ Thorson, S. V. ....Minneapolis
§ Thysell, D. M. ....Minneapolis
§†Tingdale, A. C. ....Minneapolis
§ Tinkham, R. G.........Minneapolis
Titrud, L. A............Minneapolis
§ Tobin, John D..........Minneapolis
Todd, Romona L........Minneapolis
§ Trach, B. B. ....Minneapolis

§ Trow, James E. ....Minneapolis
§ Trow, Wm. H. ....Minneapolis
§ Trueman, H. S. ....Minneapolis
§ Tudor, R. B. ....Minneapolis
§†Tunstead, H. J. ....Minneapolis
† Turnacliff, D. D. ....Saint Paul
† Twomey, J. E. ....Minneapolis
§ Ude, Walter H. ....Minneapolis
§†Ulrich, Henry L. .....Minneapolis
§ Ulvestad, H. S. ....Minneapolis
§ Undine, C. A. ....Minneapolis
Vik, Arthur E. ....Minneapolis

§ Wahlquist, H. F. ....Minneapolis
§ Waldron, C. W. ....Minneapolis
§ Wall, Carl R. ....Minneapolis
§ Walsh, Francis M. .....Minneapolis
§ Walsh, Wm. T. ....Minneapolis
Wangensteen, O. H.....Minneapolis
Ward, Percy A..........Minneapolis
§ Watson, C. G. ....Minneapolis
Watson, C. J. ....Minneapolis
† Weaver, M. Mc...............
Vancouver, B. C.
§ Webb, Edgar A. ....Minneapolis
§ Webb, Roscoe C. ....Minneapolis
§ Webber, R. J...............Hopkins
§ Weisberg, R. J.........Minneapolis
§ Wendland, J. P.........Minneapolis
Werner, George.........Minneapolis
† West, Catherine C. .....Minneapolis
‡ Westphal, K. F. ......Portland, Ore.
§†Wethall, Anton G.......Minneapolis
Wetherby, Macnider ....Minneapolis
§ Weum, T. W. ....Minneapolis
§ White, A. A. ....Minneapolis
§ White, S. M. ....Minneapolis
§ White, W. D. ....Minneapolis
§ Whitesell, L. A. ....Minneapolis
§ Widen, W. F. ....Minneapolis
† Wilcox, A. E. ....Minneapolis
† Wilder, K. W. ....Minneapolis
§ Wilder, R. L. ....Minneapolis
§ Wilder, R. M., Jr. ....Minneapolis
§ Wilken, P. A. ....Minneapolis
§†Willcutt, C. E. .....Phoenix, Ariz.
† Williams, Robert .....Carthage, Ill.
§ Wilson, R. H...........Minneapolis
Winther, Nora M. C. ...Minneapolis
§ Wipperman, F. F. .....Minneapolis
§ Witham, Carl A. ....Minneapolis
Wittich, F. W. ....Minneapolis
§ Wohlrabe, A. A. ......Minneapolis
Wohlrabe, A. C. ....Minneapolis
Wolf, Alfred H. ......Minneapolis
† Wood, Robert A. ......Minneapolis
§ Worden, R. E. .....Columbus, Ohio
§ Wright, Wale S. ......Minneapolis
Wright, Wm. S. ......Minneapolis
Wyatt, O. S. ....Minneapolis
Wynne, H. M. N. .....Minneapolis

§ Ylvisaker, R. S. ....Minneapolis
§ Yoerg, Otto W. ....Minneapolis

§ Zaworski, Leo A. ......Minneapolis
Zierold, A. A. ....Minneapolis
§ Zinter, F. A. ....Minneapolis
§ Ziskin. Thos. ....Minneapolis

KANDIYOHI-SWIFT-MEEKER COUNTY MEDICAL SOCIETY

Regular meetings, third Thursday of each month
Annual meeting, December
Number of Members: 45

President
Proeschel, R. K. ....Willmar

Secretary
Jacobs, D. L. ....Willmar

Anderson, R. E. ....Willmar
Arnson, J. M. ....Benson
Bosland, H. G. ....Willmar
Chadbourn, W. A. ....Litchfield
† Daignault, Oscar ....Benson
† Danielson, K. A. ....Litchfield
Danielson, Lennox ....Litchfield
Dille, D. E. ....Litchfield
Kaufman, E. J. ....Appleton
Eberley, T. S. ....Benson
Fisher, J. M. ....Willmar
Frederickson, Alice C. .....Willmar
Frederickson, Guy U. Y. ...Willmar
Frisch, F. P. ....Willmar
† Frost, E. H. ....Willmar
Giere, S. W. ....Benson
Gilman, L. C. ....Willmar
Griffin, R. P. ....Benson
Guy, Jack A. ....New London
Herbst, R. F. ....Willmar
Hinz, W. E. ....Willmar
Hodapp, R. J. ....Willmar
Hodapp, R. V. ....Willmar
Jacobs, D. L. ....Willmar
† Jacobs, J. C. ....Willmar
† Johnson, Hans ....Kerkhoven
Kelley, K. J. ....Litchfield
Lundblad, R. M. ....Clara City
Macklin, W. E., Jr. ....Willmar
McCarthy, A. M. ....Willmar
Michels, R. P. ....Willmar
Nelson, K. L. ....Balaton
O'Connor, D. C. .....Eden Valley
Ostling, B. C. ....Kerkhoven
† Penhall, F. W. ....Willmar
Peterson, W. E. ....Willmar
Porter, O. M. ....Willmar
Proeschel, R. K. ....Willmar
Rygh, H. N. ....Atwater
Sellers, G. K. ....Dassel
Solsem, F. N. S. ....Spicer
Sutherland, W. H. ....Benson
Verby, J. E., Jr. ....Litchfield
Wilmot, C. A. ....Litchfield
Wilmot, H. E. ....Litchfield

LYON-LINCOLN COUNTY MEDICAL SOCIETY

Regular meetings, last Tuesday of each month
Annual meeting, last Tuesday of October
Number of Members: 28

President
Ferguson, W. C. .....Walnut Grove

Secretary
Purves, G. H............Hendricks

Akester, Ward ....Fergus Falls
‡ Benson, L. M. ..Camp Rucker, Ala.
Eckdale, J. E. ....Marshall
Ferguson, W. C. .....Walnut Grove
Ford, Burton C. ....Marshall
Friedell, George ....Ivanhoe
† Gray, F. D. ....Marshall
Hedenstrom, P. C. ....Marshall
Helferty, J. K.................
V. A. Hosp., Boise, Idaho

Hermanson, P. E. ....Hendricks
Hoidale, A. D. ....Tracy
Johnson, C. Percy ....Tyler
Kreuzer, T. C. ....Marshall
Monson, L. J. ....Canby
Murphy, J. E. ....Marshall
Peterson, K. A. ....Marshall
Purves, G. H. ....Hendricks
‡ Remsberg, R. R..Camp Rucker, Ala.
† Robertson, J. B.........Minneapolis
*†Sanderson, E. T. ....Alexandria
Sether, A. F. ....Ruthton
Smith, Lloyd A. ....Tyler
Thompson, C. O. ....Hendricks
Vadheim, A. L. ....Tyler
Valentine, W. H. ....Tracy
Wolstan, S. D. ....Minneota
Workman, W. G. ....Tracy
Yaeger, W. W. ....Marshall

McLEOD COUNTY MEDICAL SOCIETY

Regular meeting, third Thursday of each month
Annual meeting, January
Number of Members: 24

President
Kallestad, L. L. ....Brownton

Secretary
Selmo, J. D. ....Norwood

§ Brink, D. M. ....Hutchinson
† Clement, J. B. ......Lester Prairie
§ Goss, H. C. ....Glencoe
Goss, Martha D. ....Glencoe
§ Gridley, J. W. ....Glencoe
§‡Griebie, Grant L...Ft. Lewis, Wash.
§ Holm, H. H. ....Glencoe
§ Jensen, A. M. ....Brownton
§ Kallestad, L. L. ....Brownton
Klima, W. W. ....Stewart
Leitschuh, L. F. ....Winsted
§ Lippmann, E. W. .....Hutchinson
§ McMahon, M. J. ......Green Isle
§ Neumaier, Arthur ....Glencoe
§ Peterson, K. H. ....Hutchinson
Sahr, W. G. ....Hutchinson
Scholpp, O. W. ....Hutchinson
§ Selmo, J. D. ....Norwood
§ Sheppard, C. G. ....Hutchinson
*†Shraber, E. E............Watertown
§ Smith, G. R. ....Hutchinson
§ Smyth, J. J. ....Lester Prairie
§ Truesdale, C. W. ....Glencoe
§ Trutna, T. J. ....Silver Lake

MOWER COUNTY MEDICAL SOCIETY

Regular meeting, last Thursday of each month
Annual meeting, December
Number of Members: 31

President
Twiggs, L. F. ....Austin

Secretary
Rosenthal, F. H. ....Austin

§ Anderson, D. P. ....Austin
§ Anderson, H. J. ....Austin
§ Barber, T. E. ....Austin
§ Cronwell, B. J. ....Austin
Fisch, H. M. ....Austin
§ Flanagan, L. G. ....Austin
§ Grise, W. B. ....Austin
Havens, J. G. W.............Austin
† Hegge, O. H. ....Austin
§ Hegge, R. S. ....Austin
*†Henslin, A. E. ....Cresco, Iowa
§ Hertel, G. E. ....Austin
§ Leck, P. C..................Austin
‡ Lewis, J. S., Jr...Bremerton, Wash.
§ Lommen, P. A. ....Austin
McKenna, Elizabeth M.......Austin
§ McKenna, J. K.............Austin
Melzer, G. R. ....Lyle
Morse, M. P. ....Le Roy
§ Peterson, S. C. ....Austin
§ Robertson, P. A. ....Austin
§ Rosenthal, F. H. ....Austin
§ Sargent, E. C., Jr. ....Austin
Schneider, P. J. ....Adams
§*†Schottler, G. J..............Dexter
§ Seery, T. M. ....Austin
§ Sheedy, C. L. ....Austin
§ Twiggs, L. F................Austin
§ Van Cleve, H. P. ....Austin
§ Wilson, F. C. ....Austin
§ Wright, R. R. ....Austin

NICOLLET-LE SUEUR COUNTY MEDICAL SOCIETY

Regular meeting, not scheduled
Annual meeting, December
Number of Members: 27

President
Grimes, B. P. ....St. Peter

Secretary
Wilcox, G. C. ....St. Peter

§†Aitkens, H. B. ....LeCenter
Bodaski, A. A. ....LeCenter
Branham, D. S. ....St. Peter
§ Canfield, W. W. ....St. Peter
§ Covell, W. W. ....St. Peter
§ Curtis, R. A. ....LeCenter
§ Ericson, Swan ....Le Sueur
§ Grimes, B. P. ....St. Peter
§ Hiniker, P. J. ....Le Sueur
§ Johnson, H. C. .....North Mankato
Kabrick, O. A. ....St. Peter
§ Larson, M. H. ....Nicollet
§ Lenander, M. E. ....St. Peter
§ Nilson, H. J. ......North Mankato
§ Olmanson, E. G. ....St. Peter
§ Olson, D. C. ....Gaylord
‡ Orwoll, H. S. ......Decorah, Iowa
§ Rudie, C. N. ....St. Peter
Schulberg, V. A. ....Arlington
† Sherman, A. G. ....Minneapolis
§ Sjostrom, L. E. ....St. Peter
§ Sonnesyn, N. N. ....Le Sueur
§ Strathern, C. S. ....St. Peter
§†Strathern, F. P. ....St. Peter
§ Traxler, J. F. ....Henderson
§ Wilcox, G. C. ....St. Peter
§ Wohlrabe, C. F. ....North Mankato

OLMSTED-HOUSTON-FILLMORE-DODGE COUNTY MEDICAL SOCIETY

Regular meetings, first Wednesday every odd month
Annual meeting, first Wednesday in November
Number of Members: 584

President
O'Leary, P. A. ....Rochester

Secretary
Carryer, H. M. ....Rochester

§ Achor, R. W. P. ....Rochester
§ Adams, R. C. ....Rochester
§ Adson, A. W. ....Rochester
§ Affeldt, D. E. ....Kasson
§ Ahlfs, J. J. ....Caledonia
§ Aldrich, R. A. ....Rochester
§ Allen, E. V. N. ....Rochester
† Amberg, Samuel ....Rochester
§ Andersen, H. A. ....Rochester
§ Anderson, A. D. ....Rochester
Anderson, C. D. ......Chicago, Ill.
§ Anderson, M. J. ....Rochester
§ Anderson, M. W. ....Rochester
§ Anderson, T. P. ....Rochester
§ Arata, J. E. ....Rochester
§ Atmore, W. G. ....Rochester
§ Austin, G. W........Memphis, Tenn.
§ Baggenstoss, A. H. ......Rochester
§ Bahn, R. C. ....Rochester
Bain, R. C. ....Rochester
§ Bair, H. L. ....Rochester
§ Baker, G. S. ....Rochester
§ Baker, H. R. ....Hayfield
§ Baker, P. L. ....Rochester
§ Baker, R. L. ....Hayfield
§†Balfour, D. C. ....Rochester
§ Balfour, W. M. ....Rochester
§ Ball, W. P. ....Rochester
§ Banner, E. A. ....Rochester
§ Bannon, W. G. ....Rochester
§ Barber, J. R. ....Rochester
§ Bargen, J. A. ....Rochester
§ Barker, N. W. ....Rochester
§ Barnes, A. R. ....Rochester
§ Bartholomew, L. G. ......Rochester
§ Baskin, R. H. ....Rochester
§ Bastron, J. A. ....Rochester
§ Bayrd, E. D. ....Rochester
§ Beahrs, O. H. ....Rochester
§ Beard, E. F. ....Rochester
Becker, S. W., Jr. ......Rochester
§ Begley, J. W. ....Rochester
§ Belding, III, H. H. .....Rochester
§ Bellegie, N. J. ....Rochester
§ Bender, L. F. ....Rochester
§ Benedict, W. H. ....Rochester
§ Benedict, Wm. L. ....Rochester
§ Bennett, H. S. .....Cleveland, Ohio
§ Bennett, W. A. ....Rochester
§ Benua, R. S. ....Rochester
§ Benz, E. J. ....Rochester
§ Berens, James ....Rochester
§ Berkman, D. M. ....Rochester
§ Berkman, J. M. ....Rochester
§ Bernatz, P. E. ....Rochester
§ Bickel, W. H. ....Rochester
Bigelow, C. E.........Dodge Center
§ Black, B. M. ....Rochester
§ Blackburn, C. M. ....Rochester
Block, M. A. ....Rochester
§ Block, W. J., Jr. ....Rochester
† Boothby, W. M.
Randolph Field, Texas
§ Bostwick, J. L. ....Rochester
§ Boucek, R. J. ....Rochester
§ Boyd, D. A., Jr. ....Rochester
§ Braasch, J. W. ....Rochester
§†Braasch, Wm. E. ....Rochester
§ Braceland, F. J. ....Rochester
§ Brandenburg, R. O. ......Rochester
§ Bresette, J. E. ....Rochester
§ Brickley, P. M. ....Rochester
Brindley, C. O. ....Rochester
§ Broders, A. C. ......Temple, Texas
§ Brown, H. A. ....Rochester
§ Brown, J. R. ....Rochester
§ Brown, P. W. ....Rochester
§ Brunsting, L. A. ....Rochester
§ Brzustowicz, R. J. .....Rochester
§ Buie, L. A. ....Rochester
§ Burchell, H. B. ....Rochester
‡ Burgert, E. O., Jr.
Ft. Sam, Houston, Texas
§ Burgess, H. M. ....Rochester
§ Burke, E. C. ....Rochester
§ Butcher, W. A. ....Rochester
§ Butin, J. W. ....Rochester
§ Butler, D. B.........Houston, Texas
§ Butt, H. R. ....Rochester
§ Cain, J. C. ....Rochester
§ Camp, J. D. ....Rochester
§ Campbell, D. C. ....Rochester
§ Carey, J. M. ....Rochester
§ Carlisle, J. C. ....Rochester
§ Carr, D. T. ....Rochester
§ Carroll, T. T. ....Rochester
§ Carryer, H. M. ....Rochester

	Cashin, J. C.	Rochester
	Chance, D. P.	Rochester
§	Childs, D. S., Jr.	Rochester
	Chriss, J. W.	Rochester
§	Christensen, N. A.	Rochester
§	Christie, D. P.	Rochester
§	Christoferson, L. A.	Fargo, N. D.
§	Clagett, O. T.	Rochester
§	Clark, L. W.	Spring Valley
§	Clark, III, P. L.	Rochester
	Clifton, T. A.	Chatfield
	Cole, J. P.	Rochester
§	Comfort, M. W.	Rochester
	Cook, J. R.	Rochester
§	Cooley, J. C.	Rochester
§	Cooper, I. S.	Rochester
§	Corbin, K. B.	Rochester
	Counseller, V. S.	Rochester
	Courtin, R. F.	Rochester
§	Coventry, M. B.	Rochester
§	Craig, W. M.	Rochester
§	Crenshaw, J. L., Jr.	Rochester
§†	Crenshaw, J. L.	Sanford, Fla.
§	Crumpacker, E. L.	Rochester
	Culp, O. S.	Rochester
§	Curtiss, R. K.	Rochester
§	Dahlin, D. C.	Rochester
§	Daly, David	Rochester
§	Daugherty, G. W.	Rochester
§	Davis, A. C.	Rochester
§	Davis, G. D.	Rochester
*	Davis, I. G.	Rushford
§	Davis, R. E.	Rochester
§	Davis, R. M.	Marion, Ind.
§	Dearing, Wm. H., Jr.	Rochester
§	DeForest, R. E.	Rochester
§	Devine, K. D.	Rochester
§	DeWeerd, J. H.	Rochester
§	Didcoct, J. W.	Rochester
§	Diessner, G. R.	Rochester
§	Dillard, P. G., Jr.	Rochester
§	Dixon, C. F.	Rochester
	Doane, J. C.	Rochester
§	Dockerty, M. B.	Rochester
§	Dodge, H. W., Jr.,	Rochester
*	Dolder, F. C.	Eyota
	Donald, T. C., Jr.	Rochester
§	Donoghue, F. E.	Rochester
§	Dornberger, G. R.	Rochester
§	Douglass, B. E.	Rochester
§	Doust, W. C.	Rochester
†	Drake, F. A.	Lanesboro
†	Drips, D. G.	Rochester
§	Dry, T. J.	Rochester
	Duncan, D. K.	Rochester
§	Dunlap, R. W.	Rochester
§	DuShane, J. W.	Rochester
§	Eaton, L. M.	Rochester
§	Eby, L. G.	Rochester
§	Ede, Mitchell	Rochester
	Edwards, J. E.	Rochester
§	Elkins, E. C.	Rochester
§	Ellis, F. H.	Rochester
§	Emmett, J. L.	Rochester
	Epperson, D. P.	Rochester
§	Erich, J. B.	Rochester
§	Erickson, D. J.	Rochester
	Esser, R. A.	Rochester
§	Estes, J. E.	Rochester
§†	Eusterman, G. B.	Rochester
†	Evarts, A. B.	Rochester
§	Faber, J. E.	Rochester
§	Falsetti, F. P.	Rochester
§	Faulconer, Albert, Jr.	Rochester
§	Faulkner, J. W.	Rochester
	Feldman, F. M.	Bronxville, N. Y.
§	Ferris, D. O.	Rochester
	Figi, F. A.	Rochester
§	Fitzpatrick, T. B.	Rochester
§	Flanagan, J. R.	Rochester
	Foss, E. L.	Rochester
§	Foulk, W. T.	Rochester
§	Frank, L. M.	Rochester
§	Freedman, M. A.	Rochester
	Freeman, J. G.	Rochester
§	Fricke, R. E.	Rochester
§	Fuller, Josiah	Rochester
§†	Gambill, C. M.	Rochester
§	Gambill, E. E.	Rochester
	Gastineau, C. F.	Rochester
	Geraci, J. E.	Rochester
§	Ghormley, K. O.	Rochester
§	Ghormley, R. K.	Rochester
§	Gibb, R. P.	Rochester
§	Giberson, R. G.	Rochester
§	Gibson, M. M.	Rochester
§†	Giffin, H. Z.	Rochester
§	Gifford, R. W., Jr.	Rochester
§	Gilbert, L. W.	Rochester
§	Ginsberg, R. L.	Rochester
§	Goldstein, N. P.	Rochester
§	Good, C. A., Jr.	Rochester
§	Goodlad, J. H.	Rochester
§	Graham, G. G.	Rochester
§	Gray, H. K.	Rochester
	Greene, L. F.	Rochester
§‡	Griffin, G. D. J., Jr.	Boswell, New Mexico
§	Griffith, E. R.	Rochester
§	Grindlay, J. H.	Rochester
§	Gross, J. B.	Rochester
§	Gustafson, M. B.	Rochester
§	Habein, H. C.	Rochester
§	Haddy, F. J.	Rochester
§	Hagedorn, A. B.	Rochester
§	Haines, S. F.	Rochester
§	Hall, B. E.	Rochester
§	Hallberg, O. E.	Rochester
§†	Hallenbeck, D. F.	Rochester
§	Hallenbeck, G. A.	Rochester
	Hanlon, D. G.	Rochester
§	Hanson, H. H.	Rochester
§	Hanson, N. O.	Rochester
‡	Hanson, S. M.	Sparta, Wis.
§	Harnagel, E. E.	Rochester
§	Harrington, S. W.	Rochester
§	Harris, L. E.	Rochester
§	Hattox, J. S.	Rochester
§	Hauch, E. W.	Rochester
§	Havens, F. Z.	Rochester
§	Hayes, D. W.	New Orleans, La.
§	Haynes, A. L.	Rochester
§	Healy, M. M.	Rochester
§	Heck, F. J.	Rochester
§†	Heilman, D. M. H.	Rochester
§	Heilman, F. R.	Rochester
†	Helland, G. M.	Spring Grove
†	Helland, J. W.	Spring Grove
§†	Helmholz, H. F.	Rochester
§†	Hempstead, B. E.	Rochester
	Hench, P. S.	Rochester
§	Henderson, E. D.	Rochester
§	Henderson, J. W.	Rochester
§	Henderson, M. S.	Rochester
§	Herbert, C. M., Jr.	Rochester
§	Herrell, W. E.	Rochester
§	Hetrick, M. A.	Rochester
§†	Hewitt, R. M.	Rochester
†	Heyerdale, O. C.	Rochester
§	Hightower, N. C., Jr.	Minneapolis
§	Hill, J. R.	Rochester
	Hills, O. W.	Rochester
§	Hilsabeck, J. R.	Rochester
§	Hines, C. R., Jr.,	Rochester
§	Hines, Edgar A., Jr.	Rochester
§	Hodgson, C. H.	Rochester
§	Hodgson, J. R.	Rochester
§	Hoffman, M. S.	Rochester
§	Holland, C. R.	Rochester
	Hollenhorst, R. W.	Rochester
§	Holman, C. B.	Rochester
§	Holt, A. H.	Rochester
§	Hood, R. T.	Rochester
§	Horton, B. T.	Rochester
§	Howell, Llewelyn P.	Rochester
§	Hubler, W. L.	Rochester
§	Hugenberg, W. C.	Rochester
§	Huizenga, K. A.	Rochester
§	Hunt, A. B.	Rochester
	Hunt, William	Rochester
§	Hunter, J. S.	Rochester
§	Hunter, R. C.	Rochester
§	Ivins, J. C.	Rochester
§	Ivy, J. H.	Rochester
§	Jackman, R. J.	Rochester
§	Jampolis, R. W.	Rochester
§	Janes, J. M.	Rochester
	Johnson, Adelaide M.	Rochester
	Johnson, A. B.	Rochester
§	Johnson, C. E.	Rochester
§	Johnson, D. A.	Rochester
§	Johnson, H. A.	Rochester
§	Johnson, H. W.	Rochester
	Johnson, R. B.	Lanesboro
§	Johnson, W. E.	Rochester
§‡	Jones, George W.	Ft. Leavenworth, Kan.
	Jones, R. F.	Rochester
§	Jordan, R. A.	Rochester
§	Josselson, A. J.	Rochester
	Joyce, G. L.	Rochester
§	Judd, E. S., Jr.	Rochester
§	Judge, D. J.	Rochester
	Karlen, Markle	Rochester
§	Keating, F. R., Jr.	Rochester
§	Keating, J. U.	Rochester
§	Keith, H. M.	Rochester
§†	Keith, N. M.	Rochester
§	Kelley, E. P.	Rochester
	Kelly, A. H.	Rochester
§	Kelsey, J. R.	Rochester
§	Kennedy, R. L. J.	Rochester
	Kennedy, T. V. A.	Rochester
§	Kenney, F. D.	Rochester
§	Kernohan, J. W.	Rochester
§	Kiely, J. M.	Rochester
§	Kierland, R. R.	Rochester
§	Kimbrough, R. F.	Rochester
§	Kirby, T. J., Jr.	Rochester
§	Kirklin, B. R.	Rochester
§	Kirklin, J. W.	Rochester
§	Kleckner, M. S.	Rochester
	Knight, C. D.	Rochester
	Knutson, L. A.	Spring Grove
§	Knutson, R. C.	Rochester
	Knutsson, K. H.	Rochester
§	Koelsche, G. A.	Rochester
§	Koza, D. W.	Rochester
§	Krakowka, G. F.	Rochester
§	Kroboth, F. J., Jr.	Rochester
§	Krout, R. M.	Rochester
§	Krusen, F. H.	Rochester
§	Kunkel, Wm. M., Jr.	Rochester
§	Kvale, W. F.	Rochester
§	Lake, C. F.	Rochester
§	Lamp, C. B., Jr.	Rochester
§	Lay, C. L.	Rochester
§	Lazarte, J. A.	Rochester
§	Leddy, E. T.	Rochester
§	Lee, M. J., Jr.	Tyler, Texas
§†	Lemon, W. S.	Rochester
§	Lick, L. C.	Rochester
§	Lillie, H. I.	Rochester
§	Lillie, J. C.	Rochester
§	Lipscomb, P. R.	Rochester
§	Litin, E. M.	Rochester
§	Livermore, G. R.	Rochester
§	Lofgren, K. A.	Rochester
§†	Logan, Archibald H.	Rochester
§	Logan, G. B.	Rochester
§	Longley, J. R.	Rochester
§	Longo, V. J.	Rochester
§	Love, J. G.	Rochester
§	Lucas, J. E.	Saint Paul
§	Lundy, J. S.	Rochester
§	MacCarty, C. S.	Rochester
§†	MacCarthy, W. C.	Rochester
§	MacFarlane, E. B.	Rochester
§	MacKenzie, D. A.	Rochester
§	MacLean, A. R.	Rochester
§	Madison, M. S.	Rochester
§	Magath, T. B.	Rochester
	Manger, W. M.	Rochester
§	Mankin, H. W.	Rochester
§†	Mann, F. C.	Rochester
	Mann, F. D.	Rochester
§	Mann, R. H.	Rochester
§	Markle, G. B., IV	Rochester
§	Martens, T. G.	Rochester
§	Martin, G. M.	Rochester
§	Martin, W. J.	Rochester
§	Masson, D. M.	Rochester
§†	Masson, J. C.	Rochester
§	Masson, J. K.	Rochester
	Mathieson, D. R.	Rochester
§	Maxeiner, S. R., Jr.	Rochester
	Mayne, J. G.	Rochester
§	Mayo, C. W.	Rochester
	Maytum, C. K.	Rochester
	McBean, J. B.	Rochester
§	McBurney, R. P.	Rochester
	McConahey, W. M., Jr.	Rochester
§	McCormack, L. J.	Rochester
§	McDonald, J. R.	Rochester
	McIntire, S. F.	Rochester
	McKaig, C. B.	Pine Island
§	McMorris, R. O.	Rochester
§	McNaughton, R. A.	Rochester
§	McNeill, J. I.	Rochester
	McWhorter, H. E.	Rochester
§	Merritt, W. A.	Rochester
	Miller, E. M.	Rochester
§	Miller, R. D.	Rochester
§	Millikan, C. H.	Rochester
§	Mills, S. D.	Rochester
§	Moersch, F. P.	Rochester
§	Moersch, H. J.	Rochester
§	Moersch, R. U.	Rochester
§	Monsour, K. J.	Rochester
§	Montgomery, Hamilton	Rochester
§	Morlock, C. G.	Rochester
§	Morris, C. R.	Dallas, Texas
§	Morrison, R. W.	Rochester
§	Morrow, R. P., Jr.	New Orleans, La.
§‡	Morton, G. H.	Scott Air Base, Ill.
	Mussey, M. E.	Rochester
§	Mussey, W. C.	Rochester
‡	Myers, C., III	San Antonio, Tex.
§	Myers, T. T.	Rochester
§	Myers, W. P. L.	Rochester
§	Myre, T. T.	Rochester
	Nehring, J. P.	Preston
	Nelson, P. A.	Rochester
§	Nichols, D. R.	Rochester
§	Nicholson, J. W.	Rochester
	Norris, N. T.	Caledonia
	Norval, M. A.	Rochester
§	O'Cain, R. K.	Rochester
§	O'Leary, P. A.	Rochester
§	O'Shaughnessy, E. J.	Rochester
§	Odel, H. M.	Rochester
§	Olive, J. T., Jr.,	Rochester
§	Olsen, A. M.	Rochester
	Olson, E. A.	Pine Island
	Olson, G. E.	West Concord

Onsgard, L. K. ....Houston
§ Openshaw, C. R. ....Rochester
§ Osborn, J. E. ....Rochester
§ Osterholm, R. S. ....Rochester
§ Owen, H. W. ....Rochester
§ Parker, R. L. ....Rochester
Parkhill, E. M. ....Rochester
Parkin, Thomas W. ......Rochester
§ Parsons, W. B., Jr. ......Rochester
§ Patton, M. M., Jr. ......Rochester
§ Patton, M. M., Jr. ..Eugene, Ore.
§ Paulson, G. S. ....Rochester
§ Paulson, J. A. ....Rochester
§ Paynter, C. R. ....Rochester
§ Peabody, H. D., Jr. ......Rochester
§ Peabody, H. D., Jr. San Diego, Cal.
Pease, G. L. ....Rochester
Pemberton, J. deJ. ......Rochester
§ Pender, J. W. ....Rochester
§ Perry, Harold ....Rochester
§ Peters, G. A. ....Rochester
§ Petersen, M. C. ....Rochester
Peterson, W. H. .....Spring Valley
§ Phares, W. S. ....Rochester
† Piper, M. C. ....La Canada, Calif.
§ Pool, T. L. ....Rochester
§ Porter, G. E. ....Rochester
§ Post, D. B. ....Rochester
Powers, W. W. ....Rochester
§ Prangen, A. D. ....Rochester
§ Pratt, J. H., Jr. ....Rochester
§ Prickman, L. E. ....Rochester
§ Pridgen, J. E. ..San Antonio, Tex.
§ Priestley, J. T. ....Rochester
§ Pruitt, R. D. ....Rochester
§ Pugh, D. G. ....Rochester
Pyle, M. M. ....Cannon Falls
§ Quer, E. A. ....Rochester
Rall, J. E. ......New York, N. Y.
§ Ralston, D. E. ....Rochester
§ Randall, L. M. ....Rochester
§ Randall, R. V. ....Rochester
§ Randall, W. H. .Grand Forks, N. D.
§ Rasmussen, W. C. ....Rochester
Reitemeier, R. J. ....Rochester
§ Reiter, R. A. ....Rochester
§ ReMine, W. H., Jr. ......Rochester
§ Retter, Richard ....Rochester
Rice, R. G. .....Grand Island, Neb.
§ Riddell, R. V. ......Lowell, Mass.
§ Ridley, R. W. ....Rochester
‡ Rigler, R. G. ......Portsmouth, Va.
§ Ripley, H. R. ....Rochester
§ Risser, A. F. ....Stewartville
§ Robinson, A. W. ....Rochester
§ Rogne, W. G. ....Spring Grove
§ Rome, H. P. ....Rochester
§ Romness, J. O. ....Rochester
§ Rooke, E. D. ....Rochester

§ Rosin, J. D. ....Rochester
Rotnem, O. M. ....Harmony
§ Routley, E. F. ....Rochester
§ Rovelstad, R. A. ....Rochester
§ Rucker, C. W. ....Rochester
§ Rushton, J. G. ....Rochester
§ Rusted, Ian ....Rochester
§ Rydell, J. R. ....Rochester
§ Rynearson, E. H. ....Rochester
§ Salassa, R. M. ....Rochester
§†Sanford, A. H. ....Rochester
§ Sauer, W. G. ....Rochester
§ Saunders, B. H., Jr. .....Rochester
§ Saxon, R. F., Jr. ....Rochester
Sayre, G. P. ....Rochester
§ Scanlon, P. W. ....Rochester
§ Scheidel, A. M. ...Aberdeen, S. D.
§ Scheifley, C. H. ....Rochester
§ Schell, R. F. ....Rochester
§ Scherbel, A. L. ....Cleveland, Ohio
§ Schmidt, H. W. ....Rochester
§ Scholz, D. A. ....Rochester
§ Scribner, B. H. ....Rochester
§ Scudamore, H. H. ....Rochester
Seagle, J. B. ....Rochester
Seale, R. A. ....Rochester
Seebach, L. M. ....Rochester
§ Seldon, T. H. ....Rochester
§ Shands, W. C. ....Rochester
§ Shick, R. M. ....Rochester
‡ Shocket, Everett ......Dayton, Ohio
§ Sholl, P. R. ....Rochester
‡ Siekert, R. G. .....Philadelphia, Pa.
§ Siemon, Glenn ....Rochester
Simmons, W. H. ....Rochester
§ Simonton, K. M. ....Rochester
Skaug, H. M. ....Chatfield
§ Slocumb, C. H. ....Rochester
Smith, Franklin R. ..Seattle, Wash.
§†Smith, F. L. ....Rochester
§ Smith, H. L. ....Rochester
§ Smith, L. A. ....Rochester
§ Smith, N. D. ....Rochester
§ Soule, E. H. ....Rochester
§ Spear, H. C. ....Rochester
§ Spear, I. M. ....Rochester
Spencer, B. J. ....Rochester
§ Spock, B. M. ......Pittsburgh, Pa.
§ Sprague, R. G. ....Rochester
§ Stapley, L. A., Jr. ......Rochester
§ Stark, D. B. ....Rochester
§ Stauffer, M. H. ....Rochester
§ Stickney, J. M. ....Rochester
§ Stilwell, G. G. ....Rochester
§ Stinson, J. C., Jr. ....Rochester
Storsteen, K. A. ....Rochester
Stowe, H. R. ....Rochester
§ Stroebel, C. F., Jr. ......Rochester
Stuhler, L. G. ....Rochester

§†Sutherland, C. G. ....Rochester
§ Takaro, Timothy ....Rochester
§ Taylor, A. B. ....Rochester
§ Taylor, B. E. ....Lincoln, Neb.
§ Taylor, L. M. ....Rochester
§ Taylor, R. W., Jr. ......Rochester
Teitgen, R. E. ....Milwaukee, Wis.
§ Thelen, E. P. ....Rochester
§ Thompson, G. J. ....Rochester
Tihen, E. N. ....Rochester
§ Tillisch, J. H. ....Rochester
§ Tobin, J. R., Jr. ....Rochester
§ Tompkins, R. G. ....Rochester
§ Uihlein, Alfred ....Rochester
§ Upson, Mark, Jr. ....Rochester
§ Utz, J. P. ....Rochester
§ Uzmann, J. W.
Lynbrook, Long Island, N. Y.
§ Vadheim, L. A. ....Rochester
§ VanHerik, Martin ....Rochester
§ VanPatter, Ward ....Rochester
VanVleet, M. E. ....Rochester
§ Vaughn, L. D. ....Rochester
§ Wagener, H. P. ....Rochester
Wakefield, E. G. ....Rochester
§†Wakim, K. G. ....Rochester
§ Walters, Waltman ....Rochester
Wang, Jun-Chuan ......Minneapolis
§ Ward, L. E. ....Rochester
§ Watkins, C. H. ....Rochester
§ Watson, J. B. ....Rochester
§ Watson, J. R. ....Rochester
§ Waugh, J. M. ....Rochester
§ Webb, J. H. ....Rochester
§ Weber, H. M. ....Rochester
§ Weber, W. E. ....Rochester
§ Weed, L. A. ....Rochester
§ Weir, J. F. ....Rochester
§ Wellman, W. E. ....Rochester
§ Wente, H. A. ....Rochester
§ Westrup, J. E. ....Lanesboro
§ Weyand, R. D. ....Rochester
§ Wilhelm, W. F. ....Rochester
§ Williams, H. L., Jr. .....Rochester
§ Williams, L. B. ....Rochester
† Williams, R. V. ....Rushford
§ Willius, F. A. ....Rochester
§ Wilson, R. B. ....Rochester
§ Wilson, V. O. ....Rochester
§ Winburn, J. R. ....Rochester
§ Winchester, W. W. ......Rochester
§ Wollaeger, E. E. ....Rochester
§ Woltman, H. W. F. ......Rochester
§†Wood, Harry G. ....Rochester
Woolling, K. R. ....Rochester
§ Woolner, L. B. ....Rochester
§ Wright, S. M. ....Rochester
§ Young, H. H. ....Rochester
§ Zick, L. H. ....Rochester
§ Zimmer, F. E. ....Rochester

PARK REGION DISTRICT AND COUNTY MEDICAL SOCIETY

Douglas, Grant, Otter Tail and Wilkin Counties
Regular meeting date, every even month of the year
Annual meeting, December
Number of Members: 66

President
Schambers, W. F. ...Parkers Prairie

Secretary..
Lewis, C. W. ....Henning

§ Arndt, H. W. ....Detroit Lakes
§ Baker, A. C. ....Fergus Falls
Baker, J. L. ....Fergus Falls
§ Baker, N. H. ....Fergus Falls
Bergquist, K. E. ....Battle Lake
Bigler, E. E. ....Perham
Bigler, I. E. ....Perham
† Blakey, A. R. ....Osakis
§ Boline, C. A. ....Battle Lake
§ Boyd, L. M. ....Alexandria
† Boysen, Peter ....Bemidji
*§Burnap, W. L. ....Fergus Falls
Cain, J. H. ....Hoffman
§ Carlson, C. E. ....Alexandria
§ Clifford, G. W. ....Alexandria
§ Combacker, L. C. .....Fergus Falls
§ Daehlin, Rolf ....Fergus Falls
De Kruif, H. ....Fergus Falls

*†Drought, W. W. ....Fergus Falls
§ Emerson, E. E. ....Osakis
§ Estrem, C. O. ....Fergus Falls
§ Estrem, R. D. ....Fergus Falls
§ Geiser, P. M. ....Alexandria
Hanson, E. C. .....New York Mills
Harris, Evelyn S. ......Fergus Falls
§†Haskell, A. D. ....Alexandria
§ Heiberg, E. A. ....Fergus Falls
§ Helseth, H. K. ......Pelican Rapids
Hom, Leong Y. W. ....Battle Lake
Jacobs, G. C. ....Fergus Falls
§ Jacobson, C. W. ......Breckenridge
§ Kevern, J. L. ....Henning
§ Korda, H. A. ....Pelican Rapids
Leibold, H. H. ....Parkers Prairie
§ Lewis, A. J. ....Henning
§ Lewis, C. W. ....Henning
Love, F. A. ....Carlos
§ Lund, C. J. T. ....Fergus Falls
Miller, W. A. .....New York Mills
§ Mortensen, N. G. ......Minneapolis
§ Mouritsen, G. J. ......Fergus Falls
§ Naegeli, F. ....Fergus Falls

Nelson, D. E. ....Alexandria
Nelson, R. A. ....Fergus Falls
§ Nelson, W. O. B. .....Fergus Falls
§ O'Brien, L. T. ....Breckenridge
Ostergaard, Erling ....Evansville
Parson, Lillian B. ......Elbow Lake
Parson, L. R. ....Elbow Lake
Patterson, W. L. ......Fergus Falls
§ Paulson, T. S. ....Fergus Falls
Randall, A. M. ....Ashby
Reeve, E. T. ....Elbow Lake
Rockwood, P. H. ....Fergus Falls
Satersmoen, Theo. ..Pelican Rapids
§ Sather, E. R. ....Alexandria
Schamber, W. F. ...Parkers Prairie
Schoeneberger, P. B. ......Perham
§ Stemsrud, H. L. ....Alexandria
Sutton, H. R. ....Hoffman
§ Tanquist, E. J. ....Alexandria
Thompson, H. B. ......St. Cloud
Warner, J. J. ....Perham
§ Wasson, L. F. ....Alexandria
‡ Weyhrauch, R. A. ..Phoenix, Ariz.
† Wray, W. E. ....Campbell

RAMSEY COUNTY MEDICAL SOCIETY

Regular meetings, last Monday in every month excepting June, July, August
Annual meeting, last Monday in January
Number of Members: 453

President
Hedenstrom, F. G. ......Saint Paul
Secretary
Hilger, L. D. ....Saint Paul

§ Adair, A. F., Jr. ....Saint Paul
§ Ahern, A. H. ....Saint Paul
§ Aherns, A. E. ....Saint Paul
Ahrens, R. M. ....Saint Paul

§†Alden, J. F., Jr. ....Saint Paul
§ Arnquist, A. S. ....Saint Paul
§ Arny, F. P. ....Saint Paul
§ Arzt, P. K. ....Saint Paul

§ Aurelius, J. R. .... Saint Paul
§†Ausman, C. F. .... So. Saint Paul
§ Ausman, D. R. .... Saint Paul
§ Babb, Frank S. .... Saint Paul
§ Bacon, D. K. .... Saint Paul
§ Balcome, M. M. .... Saint Paul
Barnett, J. M. .... Saint Paul
Baronofsky, I. D. .... Minneapolis
Barry, L. W. .... Saint Paul
† Barsness, N. O. N. ..... Saint Paul
Bauer, E. L. .... Saint Paul
§†Beals, Hugh .... Saint Paul
§ Beech, R. H. .... Saint Paul
§ Beek, H. O. .... Saint Paul
Beer, J. J. .... Saint Paul
§ Bell, C. C. .... Saint Paul
Bellomo, James .... Saint Paul
§ Benepe, J. L. .... Saint Paul
† Bennion, P. H. ...... Isway, Mont.
§ Bentley, N. P. .... Saint Paul
§ Bernstein, Wm. C. ...... Saint Paul
§ Bicek, J. F. .... Saint Paul
† Binger H. E. ...... Phoenix, Ariz.
Black, E. J. .... Saint Paul
§ Bock, R. A. .... Saint Paul
† Boeckman, Egil .... Saint Paul
§ Bolender, H. L. .... Saint Paul
§ Borg, J. F. .... Saint Paul
† Bouma, L. R. .... Saint Paul
§ Brand, G. D. .... Saint Paul
Bray, E. R. .... Saint Paul
§ Briggs, John F. .... Saint Paul
§ Broadie, T. E. .... Saint Paul
§ Brodie, W. D. .... Saint Paul
§ Brotchner, R. J. .... Saint Paul
† Brown, J. C. .... Saint Paul
Bulinski, T. J. .... Saint Paul
§ Burch, E. P., II .... Saint Paul
† Burch, F. E. .... Saint Paul
§ Burklund, E. D. .... Saint Paul
§ Burlingame, D. A. ...... Saint Paul
§ Burns, R. M. .... Saint Paul
Burton, C. G. .... Saint Paul
Bush, R. P. .... Saint Paul
§ Busher, H. H. .... Saint Paul
§ Cain, C. L. .... Saint Paul
Callahan, F. F. .... Saint Paul
§ Carley, W. A. .... Saint Paul
§ Carroll, W. C. .... Saint Paul
§ Chadbourn, C. R. ...... Saint Paul
§ Chatterton, C. C. ...... Saint Paul
§ Christiansen, A. .... Saint Paul
§ Clark, H. B., Jr. ...... Minneapolis
Cochrane, B. B. .... Saint Paul
Coddon, W. D. .... Saint Paul
Cohen, Ellis N. ...... Newton, Mass.
§ Colby, W. L. .... Saint Paul
§ Cole, W. H. .... Saint Paul
† Collie, H. G. ..St. Petersburg, Fla.
§ Connolly, C. J. .... Saint Paul
§ Connor, C. E. .... Saint Paul
§ Cook, C. K. .... Saint Paul
§ Cooper, C. C. .... Saint Paul
§ Countryman, R. S. ...... Saint Paul
* Cowern, E. W. .... No. Saint Paul
§ Craig, D. M. .... Saint Paul
§ Critchfield, L. R. ...... Saint Paul
Crombie, F. J. ...... No. Saint Paul
Crowley, J. H. .... Saint Paul
‡ Crudo, V. D.
Ft. Sam Houston, Texas
§ Crump, J. W. .... Saint Paul
§ Culligan, J. M. .... Saint Paul
§ Culver, L. G. .... Saint Paul
*†Daugherty, E. B.
Marine-on-St. Croix
§ Davis, E. V. .... Saint Paul
Dawson, J. R. .... Saint Paul
Day, Lois A. .... Saint Paul
Decker, C. H. .... Saint Paul
§*Dedolph, Karl .... Saint Paul
§ Derauf, B. I. .... Saint Paul
§ Deters, D. C. .... Saint Paul
† Dickson, T. H. .... Saint Paul
Donohue, P. F. .... Saint Paul
§ Drake, C. B. .... Saint Paul
§ Dunn, J. N. .... Saint Paul
§ Earl, G. A. .... Saint Paul
§ Earl, J. R. .... Saint Paul
§ Edlund, Gustaf .... Saint Paul
Edwards, J. W. .... Saint Paul
Edwards, L. G. .... Saint Paul
§ Edwards, T. J. .... Saint Paul
§ Eginton, C. T. .... Saint Paul
Ely, O. S. .... So. Saint Paul
§ Emerson, E. C. .... Saint Paul
§ Emmons, R. W. .... Saint Paul
§ Endress, E. K. .... Saint Paul
Enroth, O. E. .... Saint Paul
Ernest, G. C. H., St. Petersburg, Fla.
§ Ersfeld, M. P. .... Saint Paul
† Eshelby, E. C. .... Saint Paul
Evert, J. A., Jr. .... Saint Paul
† Fahey, E. W. .... Saint Paul
Farkas, J. V. .... Saint Paul
Fee, J. G. .... Saint Paul
Felion, A. J. .... Saint Paul
§†Ferguson, J. C. .... Saint Paul
§ Fesler, H. H. .... Saint Paul
Field, A. H. .... Farmington
Fink, D. L. .... Saint Paul
§ Fisher, D. W. .... Saint Paul
§ Flanagan, H. F. .... Saint Paul
§ Flannery, H. F. .... Saint Paul
Flynn, L. L., Jr. .... Saint Paul
§ Fogarty, C. W., Jr. .... Saint Paul
† Fogarty, C. W. .... Saint Paul
§ Fogelberg, E. J. .... Saint Paul
§ Foley, F. E. B. .... Saint Paul
Forsythe, J. R. .... Saint Paul
† Freeman, C. D. . Balsam Lake, Wisc.
Freeman, C. D., Jr. ..... Saint Paul
Freeman, G. I. .... Saint Paul
Freidman, L. L. .... Saint Paul
§ Fritz, W. L. .... Saint Paul
§ Froats, C. W. .... Saint Paul
Fuller, B. F. .... Saint Paul
Furnell, D. Q. .... Saint Paul
§ Garbrecht, A. W. .... Saint Paul
Gardiner, D. G. .... Saint Paul
§ Gardner, W. P. .... Saint Paul
Garrow, D. M. .... Saint Paul
§ Gehlen, J. N. .... Saint Paul
§ Ghent, C. H. .... Saint Paul
§ Gibbs, E. C. .... Saint Paul
Gilkey, S. E. .... Saint Paul
§ Gillespie, D. R. .... Saint Paul
§ Gleason, W. A. .... Saint Paul
Goldsmith, J. W. .... Saint Paul
§†Goltz, E. V. .... Saint Paul
Goltz, N. F. .... Saint Paul
Goltz, R. W. .... Saint Paul
§ Grant, H. W. .... Saint Paul
§ Gratzek, Thos. .... Saint Paul
§ Grau, R. K. .... Saint Paul
† Gruenhagen, A. P. ...... Saint Paul
Hall, Bernard .... Saint Paul
§ Hammes, E. M. .... Saint Paul
§ Hammes, E. M., Jr. .... Saint Paul
Hammond, J. F. .... Saint Paul
§ Hanson, H. B. .... Saint Paul
§ Harmon, G. E. .... Saint Paul
§ Hartfiel, W. F. .... Saint Paul
Hartig, Marjorie .... Saint Paul
§ Hartley, E. C. .... Saint Paul
§ Hassett, M. F. .... Saint Paul
§ Hauser, V. P. .... Saint Paul
§ Hayes, A. F. .... Saint Paul
Hays, J. C. .... Saint Paul
§ Heck, W. W. .... Saint Paul
Hedenstrom, F. G. ...... Saint Paul
Henderson, A. J. G. .... Saint Paul
§ Hengstler, W. H. ...... Saint Paul
§ Hensel, C. N. .... Saint Paul
Herman, S. M. .... Saint Paul
§ Heron, R. C. .... Saint Paul
§ Herrmann, E. T. .... Saint Paul
Hertz, M. J. .... Saint Paul
§ Hilger, A. W. .... Saint Paul
* Hilger, D. D. .... Saint Paul
§ Hilger, J. A. .... Saint Paul
§ Hilger, L. D. .... Saint Paul
§ Hilker, M. D. .... Saint Paul
Hiniker, L. P. .... Saint Paul
§ Hochfilzer, J. J. .... Saint Paul
Hodgson, J. E. .... Saint Paul
Holcomb, O. W. .... Saint Paul
§ Hollinshead, W. H. ..... Saint Paul
§ Holmen, R. W. .... Saint Paul
§ Holt, J. E. .... Saint Paul
† Hopkins, G. W. .... Saint Paul
Houle, R. J. .... New Brighton
Howard, M. A. .... Saint Paul
Howard, W. S. .... Saint Paul
§ Howe, N. W. .... Saint Paul
§ Hullsiek, H. E. .... Saint Paul
§ Hullsiek, R. B. .... Minneapolis
§ Hultgen, W. T. .... Saint Paul
§ Hurwitz, M. M. .... Saint Paul
§†Ide, Arthur M. .... Saint Paul
Ikeda, Kano .... Saint Paul
Ingerson, C. A. .... Saint Paul
Jesion, J. W. .... Saint Paul
§ Johanson, W. G. .... Saint Paul
§*Johnson, A. M. .... Saint Paul
§ Johnson, C. E. .... Saint Paul
§ Jones, E. Mendelssohn .. Saint Paul
Jones, R. H. .... Minneapolis
§ Kamman, G. R. .... Saint Paul
Kaplan, D. H. .... Saint Paul
Karon, I. M. .... Saint Paul
§ Kasper, E. M. .... Saint Paul
Katz, L. J. ..Hot Springs, So. Dak.
Keefe, R. E. .... Saint Paul
§ Kelly, J. V. .... Saint Paul
§ Kelsey, C. M. .... Saint Paul
§ Kenefick, E. V. .... Saint Paul
§ Kennedy, W. A. .... Saint Paul
§ Kenyon, T. J. .... Saint Paul
§ Kesting, Herman .... Saint Paul
† King, G. L. .... Saint Paul
§ Klein, H. N. .... Saint Paul
§ Knutson, G. E. .... Saint Paul
§ Kugler, A. A. .... Saint Paul
§ Kuske, A. W. .... Saint Paul
Kvitrud, Gilbert .... Saint Paul
‡ Lane, R. E. .... Annapolis, Md.
§ Lannin, B. G. .... Saint Paul
§ Lannin, D. R. .... Saint Paul
Larsen, C. L. .... Saint Paul
Larson, Eva-Jane .... Saint Paul
Larson, J. T. .... So. Saint Paul
Larson, K. R. .... Saint Paul
Larson, M. L. .... Saint Paul
Lax, Morris H. .... Saint Paul
§ Leahy, Bartholomew .... Saint Paul
§ Leavenworth, R. O. .... Saint Paul
Lee, N. J. .... Saint Paul
§ Leick, R. M. .... Saint Paul
§ Leitch, Archibald .... Saint Paul
§ Lepak, J. A. .... Saint Paul
† Lerche, Wm. .... Cable, Wisc.
§ Leven, N. L. .... Saint Paul
§ Leverenz, C. W. .... Saint Paul
Levin, B. G. .... Saint Paul
Levitt, George X. .... Saint Paul
§ Lick, C. L. .... Saint Paul
§ Lien, R. J. .... Saint Paul
Lightbourn, E. L. ...... Saint Paul
Lilleberg, N. J. .... Saint Paul
§ Lippman, H. S. .... Saint Paul
§ Loken, S. M. .... Saint Paul
Lowe, E. R. .... So. Saint Paul
Lowe, T. A. .... So. Saint Paul
§ Lundholm, A. M. ...... Saint Paul
§ Lynch, F. W. .... Saint Paul
Mackoff, S. M. .... Saint Paul
§ Madden, J. F. .... Saint Paul
Madland, R. S. .... Saint Paul
Maertz, Wm. F. .... Saint Paul
§ Malerich, J. A. ...... W. Saint Paul
Marks, R. W. .... Saint Paul
Martin, D. L. .... Saint Paul
§ Martineau, J. L. .... Saint Paul
§ McCabe, J. S. .... Saint Paul
McCain, D. L. .... Saint Paul
McCarthy, J. J. .... Saint Paul
McCarthy, Wm. R. ...... Saint Paul
McClanahan, J. H. . White Bear Lake
McClanahan, T. S. . White Bear Lake
§ McCloud, C. N. .... Saint Paul
McEwan, Alexander ..... Saint Paul
McGroarty, B. J. .... Saint Paul
McKenzie, E. E. .... Saint Paul
† McLaren, J. M. .... Minneapolis
§ Meade, J. R. .... Saint Paul
§ Mears, B. J. .... Saint Paul
§ Medelman, J. P. .... Saint Paul
Melancon, J. F. .... Saint Paul
Menold, Wm. F. .... Saint Paul
Merner, T. B. .... Faribault
§ Meyerding, E. A. ...... Saint Paul
Michienzi, L. J. .... Saint Paul
Miller, Wm. T. .... W. Saint Paul
Miller, Z. R. .... Saint Paul
Milnar, F. J. .... Saint Paul
§ Moga, John A. .... Saint Paul
Molander, H. A. .... Saint Paul
Moquin, M. A. .... Saint Paul
† Moren, J. A. .... Saint Paul
Moriarty, Bernice .... Saint Paul
Moriarty, Cecile R. ..... Saint Paul
§ Muller, A. E. ...... No. Saint Paul
§ Muller, R. T. .... Saint Paul
Mundahl, H. P. .... Saint Paul
Murphy, J. T. .... Saint Paul
Naegeli, A. E. .... Basin, Mont.
§ Nash, L. A. .... Saint Paul
† Nelson, L. A. .... Saint Paul
Nimlos, K. O. .... Saint Paul
Nimlos, L. O. .... Saint Paul
§ Noble, I. F. .... Saint Paul
§ Noble, J. L. .... Saint Paul
Nuebel, C. J. .... Hudson, Wisc.
Nye, Katherine A. ...... Saint Paul
Nye, Lillian L. .... Saint Paul
O'Brien, J. C. .... Saint Paul
§ O'Connor, L. J. .... Saint Paul
O'Kane, T. W. .... Saint Paul
§ O'Reilley, B. E. .... Saint Paul
§ Ockuly, Orville .... Saint Paul
§ Ogden, Warner .... Saint Paul
§ Ohage, Justus .... Saint Paul
§ Olsen, R. L. .... Saint Paul
Olson, C. A. .... Saint Paul
§ Ostergren, Edw. W. .... Saint Paul
§ Ouellette, A. J. .... Saint Paul
Owens, F. M., Jr. ..... Minneapolis
Pearson, F. R. .... Saint Paul
§ Pearson, M. M. .... Saint Paul
Pedersen, A. H. .... Saint Paul
Perrigo, V. F. .... El Cajon, Calif.
Peterson, D. B. .... Saint Paul
§ Peterson, D. H. .... Saint Paul
§ Peterson, H. O. .... Saint Paul

Peterson, J. L. E. ......Saint Paul
§ Plondke, F. J. ....Saint Paul
§ Plotke, H. L. ....Saint Paul
Polski, P. G. ....So. Saint Paul
§†Prendergast, H. J. ......Saint Paul

Quattlebaum, Frank .....Saint Paul

* Radabaugh, R. C. ....Hastings
§ Ralph, J. R. ....Saint Paul
† Ramsey, W. R. ....Saint Paul
Rasmussen, R. C. ......Saint Paul
Ravits, H. G. ....Saint Paul
§ Rea, Charles E. ....Saint Paul
Reid, James W. ....Saint Paul
§ Richards, E. T. F. ......Saint Paul
Richardson, E. J., Jr. ....Saint Paul
§ Richardson, H. E. ......Saint Paul
§ Richardson, R. J. ......Saint Paul
Rick, Paul F. W. ......Saint Paul
Rinkey, Eugene ....Saint Paul
§ Ritchie, W. P. ....Saint Paul
§ Ritt, A. E. ....Saint Paul
Robinson, C. O. ....Saint Paul
§ Rogers, S. F. ....Saint Paul
Rogin, Norton ....Farmington
Rolig, D. H. ....Saint Paul
Rosenholtz, B. I. ....Saint Paul
§ Rosenthal, Robert ....Saint Paul
§ Roth, G. C. ....Saint Paul
§ Rothschild, H. J. ....Saint Paul
§ Roy. Phil C. ....Saint Paul
† Ruhberg, Geo. N. ..Tarzona, Calif.
Ryan, James D. ....Saint Paul
§ Ryan, John J. ....Saint Paul
§ Ryan, Jos, M. ....Saint Paul
§*Ryan, Mark E. ....Saint Paul

Sandeen, R. M. ....Saint Paul
§ Sarnecki, M. W. ....Saint Paul
Satterlund, V. L. ....Saint Paul
Savage, F. J. ....Saint Paul
§ Schmidtke, R. L. ....Saint Paul
Schoch, R. B. J. ....Saint Paul
§ Schons, Edward ....Saint Paul
§ Schroeckenstein, H. F. ..Saint Paul
§†Schuldt, F. C. ....Saint Paul
§ Schulze, A. G. ....Saint Paul

§ Schwyzer, H. C. ....Saint Paul
§ Scott, E. E. ....Saint Paul
Sekhon, M. S. ....Saint Paul
† Senkler, G. E. ....Saint Paul
§ Setzer, H. J. ....Saint Paul
Shannon, Wm. R. ......Saint Paul
† Shellman, J. L.
Pacific Palisades, Calif.
‡ Shimonek, S. W. ..Great Lakes, Ill.
Short, Jacob ....Saint Paul
§ Sickels, E. W. ....Saint Paul
Siegel, Clarence ....Saint Paul
§ Simons, L. T. ....Saint Paul
Singer, B. J. ....Saint Paul
Skinner, Abbott ....Saint Paul
† Skinner, H. O. ....Saint Paul
§ Smisek, E. A. ....Saint Paul
§ Smith, V. D. E. ....Saint Paul
§ Snyder, Geo. Wm. ......Saint Paul
§ Sohlberg, O. I. ....Saint Paul
Sommers, Ben ....Saint Paul
§ Sorem, M. B. ....Saint Paul
Soucheray, P. H. ....Saint Paul
§ Souster, B. B. ....Saint Paul
§ Sprafka, J. L. ....Saint Paul
§ Sprafka, J. M. ....Saint Paul
§ Steinberg, C. L. ....Saint Paul
§ Sterner, D. C. ....Saint Paul
§ Sterner, E. G. ....Saint Paul
§ Sterner, E. R. ....Saint Paul
§ Sterner, J. J. ....Saint Paul
* Sterner, O. W. ....Saint Paul
Stewart, Alexander ......Saint Paul
§ Stolpestad, A. H. ....Saint Paul
§ Stolpestad, H. L. ....Saint Paul
§ Strate, G. E. ....Saint Paul
Straus, M. L. ....Saint Paul
§ Strem, E. L. ....Saint Paul
§ Sturley, R. F. ....Saint Paul
Swanson, J. A. ....Saint Paul
Swanson, L. J. ......West St. Paul
§ Swendson, J. J. ....Saint Paul

§ Teisberg, C. B. ....Saint Paul
§ Teisberg, J. E. ....Saint Paul
Thompson, F. A. ....Saint Paul

Thoreson, M. C. Bernice ......
So. St. Paul
Thorsen, D. S. ....Saint Paul
Tifft, C. R. ....Saint Paul
§ Tracht, R. R. ....Saint Paul
Travis, J. S. ....Saint Paul
§ Tregilgas, H. R. .....So. Saint Paul

Van Bergen, F. H. .....Minneapolis
Varco, R. L. ....Saint Paul
Veirs, Dean M. ....Saint Paul
Veirs, Ruby J. S. ......Saint Paul
§ Venables, A. E. ....Saint Paul
§ von Amerongen, W. W. .Saint Paul

§ Waas, C. W. ....Saint Paul
§ Walker, A. E. ....Saint Paul
§ Walsh, Edw. F. ....Saint Paul
§ Walter, C. W. ....Saint Paul
§†Ward, Peter D. ....Saint Paul
Warren, C. A. ....Saint Paul
Watson, P. T. ....Saint Paul
Watson, W. H. A. .....Saint Paul
§ Watson, W. J. ....Newport
Watz, C. E. ....Saint Paul
§ Webber, F. L. ....Saint Paul
§ Weis, B. A. ....Saint Paul
§ Weisberg, Maurice ......Saint Paul
§ Wenzel, G. P. ....Saint Paul
Wesolowski, S. P. .....Minneapolis
† Wheeler, M. W. ....Lake Elmo
† Whitacre, J. C. ....Saint Paul
Williams, A. B. ....Saint Paul
§ Williams, C. K. ....Saint Paul
§ Williams, J. A. ....Saint Paul
§ Wilson, J. A. ....Saint Paul
§ Wilson, J. V. ....Saint Paul
Winnick, J. B. ....Saint Paul
§ Wold, K. C. ....Saint Paul
§ Wolff, H. J. ....Saint Paul
Wolkoff, H. J. ....Saint Paul
Word, H. L. ....Saint Paul
Wurdemann, A. L.............
White Bear Lake
Youngren, E. R. ....Saint Paul

Zachman, L. L. ....Saint Paul
§ Zimmermann, H. B. .....Saint Paul

RED RIVER VALLEY MEDICAL SOCIETY

Kittson, Mahnomen, Marshall, Norman, Pennington, Polk, Red Lake and Roseau Counties
Regular meetings, three—plus extras
Annual meeting, December
Number of Members: 73

President
Dale, L. N. ....Red Lake Falls

Secretary
Sather, R. O. ....Crookston

§†Adkins, C. M. ....Thief River Falls
§ Anderson, W. E. ....Clearbrook

‡ Behling, F. L. ....Moorhead
§ Behr, O. K. ....Crookston
§ Berge, D. O. ....Roseau
Berlin, A. S. ....Hallock
† Biedermann, Jacob.Thief River Falls
§ Boyer, G. S. ....Crookston
§ Boynton, Bruce ....Ada
† Bratrud, Edward ..Thief River Falls
Bratrud, T. E. ...Thief River Falls
Brink, A. A. ....Baudette

§ Cameron, J. H. ....Crookston
Carlson, A. E. ....Warren
§ Covey, K. W. ....Mahnomen

§ Dale. L. N. ....Red Lake Falls
Danford, K. A. ....Mahnomen
§ Delmore, J. L. ....Roseau
§ Delmore, J. L., Jr. ......Roseau
Delmore, R. J. ....Roseau

§ Erickson, Eskil ....Halstad

Feigal, W. M. ....Thief River Falls
Flancher, L. H. ....Crookston

§ Greene, D. E. ....Thief River Falls

§†Hendrickson, R. R. ......Crookston
§ Henney, W. H. ....McIntosh
† Hollands, W. H. ....Fisher
§ Holmstrom, C. H. ....Warren

Janecky, A. G. ....Baudette
§ Janssen, M. E. ....Crookston
§ Jensen, A. R. ....Crookston
Johnson, H. C. ....Thief River Falls
Johnson, R. E. .....Ah-Gwah-Ching

§ Kinkade, B. R. ....Ada
† Kirk, G. P. ......East Grand Forks
§ Klefstad, L. H. ....Greenbush
Knutson, G. A. ....Hallock
§ Kostick, W. R. ....Fertile

§ Loken, Theodore ....Ada
Lynde, O. G. ......Los Gato, Calif.

McKaig, A. M. ....Red Lake Falls
McLane, W. O. ....Brainerd
§†Melby, O. F. .....Thief River Falls
§ Mercil, W. F. ....Crookston

† Nelson, H. E. ....Crookston
Nickerson, N. D...Thief River Falls
§ Nietfeld, A. B. ....Warren

§ Norman, J. F. ....Crookston
O'Leary, J. H. ....Thief River Falls
§ Oppegaard, C. L. ....Crookston
§ Oppegaard, M. O. ....Crookston
†*Parsons, J. G. ....Crookston
Pearson, L. O. ....Erskine
§ Pohl, D. E. ....Crookston
§ Pumala, E. E. ....Warren

† Quigley, W. P. ...Brooklyn, N. Y.

§ Reff, A. R. ....Crookston
§ Roholt, H. B. ....Fosston
† Rydland, A. D. ....Minneapolis

Sather, E. L. ....Fosston
§ Sather, G. A. ....Fosston
§ Sather, R. N. ....Fosston
§ Sather, R. O. ....Crookston
§ Skogerboe, R. B. ....Karlstad
§ Starekow, M. D. ..Thief River Falls
Stewart, D. E. ....Crookston
‡ Stone, Norman F. ......Chicago, Ill.

† Torgerson, W. B. ....Oklee

§ Uhley, C. G. ....Crookston

Valenti, D. A. ....Thief River Falls
Van Rooy, G. T. ..Thief River Falls

§‡Watson, R. M. ..Camp Rucker, Ala.
† Wiltrout, I. G. ....Oslo

RENVILLE COUNTY MEDICAL SOCIETY

Regular meetings, second Tuesday of each month
Annual meeting, October
Number of Members: 20

President
Anderson, C. A. ....Hector

Secretary
Cosgriff, Jr., J. A............Olivia

Alcorn, W. J. ....Wabasso
§ Anderson, C. A. ....Hector

§ Anderson, D. C. ....Olivia
§ Billings, R. E. ....Franklin
§†Brand, W. A. ......Redwood Falls
§ Ceplecha, S. F. ....Redwood Falls
§ Cosgriff, J. A. ....Olivia
Cosgriff, James A., Jr. ......Olivia
§ Dordal, John ....Sacred Heart
§ Fawcett, A. M. ....Renville
Flinn, T. E. ....Remer

§†Gaines, E. C. ....Buffalo Lake
§ Hinderaker, H. P. ......Bird Island
§ Johnson, O. H. ....Redwood Falls
§ Johnson, W. E. ....Morgan
§ Knoche, H. A., Jr..........Morgan
Lenz, J. R. ....Morton
McLeod, J. J. ....Japan
Potthoff, C. J. ...Washington, D. C.
Preisinger, J. W. ....Renville

RICE COUNTY MEDICAL SOCIETY

Regular meeting, third Tuesday of every month
Annual meeting, October
Number of Members: 35

President
Traeger, C. A. .... Faribault

Secretary
Kolars, J. J. .... Faribault

§ Adkins, G. H. .... Faribault
Bruhl, H. H. .... Faribault
Buesgens, R. H. .... Waterville
§†Dungay, N. S. .... Northfield
§ Engberg, E. J. .... Faribault
Francis, D. W. .... Morristown
† Hanson, A. M. .... Faribault
§ Hanson, J. W. .... Northfield
† Huxley, F. R. .... Faribault
§ Kennedy, G. L. .... Faribault
§ Kolars, J. J. .... Faribault
§ Kucera, L. B. .... Lonsdale
§ Lende, Norman .... Faribault
Lexa, F. J. .... Lonsdale
§ Maertz, R. W. .... Faribault
§ Mears, R. F. .... Northfield
Meyer, F. C. .... Kenyon
Meyer, P. F. .... Faribault
Moses, R. R. .... Kenyon
Navratil, D. R. .... Montgomery
§ Nielson, A. M. .... Northfield
§ Nuetzman, A. W. .... Faribault
Petersen, D. H. .... Northfield
§ Robilliard, C. M. .... Faribault
Rohrer, C. A. .... Waterville
Rumpf, C. W. .... Faribault
§ Stevenson, F. W. .... Faribault
§ Street, Bernard .... Northfield
§ Studer, D. J. .... Faribault
§ Traeger, C. A. .... Faribault
‡ Utne, J. R. .... Northfield
Walter, G. F. .... Farmington
§ Weaver, P. H. .... Faribault
† Wilkinson, S. L. .... Faribault
§ Wilson, W. E. .... Northfield

ST. LOUIS COUNTY MEDICAL SOCIETY

Carlton, Cook, Itasca, Lake and St. Louis Counties
Regular meetings, second Thursday of each month
Annual meeting, January
Number of Members: 242

President
McHaffie, O. L. .... Duluth

Secretary
LaBree, R. H. .... Duluth

§ Abraham, A. L. .... Duluth
§ Adams, B. S. .... Hibbing
Addy, E. R. .... Gilbert
† Arhelger, Stuart .... Minneapolis
§ Arko, J. L. .... Hibbing
§* Armstrong, E. L. .... Duluth
§ Athens, Alvin G. .... Duluth
§ Bachnik, F. W. .... Hibbing
§ Backus, R. W. .... Nopeming
§ Bagley, C. M. .... Duluth
Bagley, E. C. .... Duluth
§ Bagley, Wm. R. .... Duluth
§ Baich, V. M. .... Bovey
§ Bakkila, H. E. .... Duluth
§ Bardon, Richard .... Duluth
§ Barker, J. D. .... Duluth
Barney, L. A. .... Duluth
§ Barrett, E. E. .... Duluth
§ Becker, F. T. .... Duluth
§ Benell, O. E. .... Virginia
Bepko, Marie K. .... Cloquet
Berdez, G. L. .... Duluth
§ Bergan, R. O. .... Duluth
§ Bianco, A. J., Jr. .... Duluth
Bianco, A. J. .... Duluth
† Binet, H. E. .... Grand Rapids
§ Blackmore, S. C. .... Biwabik
Bolz, J. A. .... Grand Rapids
Boman, P. G. .... Duluth
§ Booren, J. C. .... Duluth
§ Bowen, R. L. .... Hibbing
† Boyer, S. H. .... Duluth
§ Boyer, S. H., Jr. .... Duluth
§ Braun, O. C. .... Grand Rapids
§ Bray, P. N. .... Duluth
Bray, R. B. .... Rapid City, S. D.
§ Brooker, W. J. .... Duluth
§ Buckley, R. P. .... Duluth
§ Butler, J. K. .... Cloquet
Cantwell, Wm. F. .... International Falls
Chapman, T. L. .... Duluth
Chermak, F. G. .... International Falls
§ Christensen, C. H. .... Duluth
§ Clark, C. L. .... Duluth
Clark, E. A. .... Duluth
§ Clark, I. T. .... Duluth
§ Coll, J. J. .... Duluth
† Collins, A. N. .... Moose Lake
§ Conley, F. W. .... Duluth
§ Coventry, Wm. A. .... Duluth
§ Coventry, Wm. D. .... Duluth
Detjen, E. D. .... Bigfork
Doyle, G. C. .... Duluth
§ Eckman, P. F. .... Duluth
§ Eckman, R. J. .... Duluth
§ Ekblad, J. Wm. .... Duluth
Eklund, C. D. .... Brookston
§ Elias, Frank J. .... Duluth
§ Emanuel, Karl Wm. .... Duluth
Eppard, R. M. .... Cloquet
§ Estrem, T. A. .... Hibbing
§ Ewens, H. B. .... Virginia
§ Fawcett, K. R. .... Duluth
§ Fellows, M. F. .... Duluth
§ Fischer, M. McC. .... Duluth
§ Fisketti, Henry .... Duluth
§ Flynn, Bernard F. .... Hibbing
Fortier, R. G. .... Marble
Fredricks, M. G. .... Duluth
§ Gillespie, M. G. .... Duluth
§ Goldish, D. R. .... Duluth
§ Gowan, L. R. .... Duluth
§ Graham, A. W. .... Chisholm
§ Grahek, J. P. .... Ely
§ Graves, W. N. .... Duluth
§ Grinley, A. V. .... Grand Rapids
§ Haavik, J. E. .... Duluth
§‡Halbert, J. J. .... Duluth
§ Halliday, P. V. .... Duluth
Halme, W. B. .... Cloquet
† Haney, Claude L. .... Duluth
§ Hanson, E. O. .... Carlton
Harris, C. N. .... Hibbing
§ Hatch, W. E. .... Duluth
Hayes, M. F. .... Nashwauk
§ Hedberg, G. A. .... Nopeming
Heiam, Wm. C. .... Cook
§ Hilding, A. C. .... Duluth
Hill, F. E. .... Duluth
Hirschboeck, F. J. .... Duluth
§ Hoff, H. O. .... Duluth
§ Houkom, S. S. .... Duluth
Hutchinson, H. .... Moose Lake
§ Jacobson, Clarence .... Chisholm
§ Jacobson, F. C. .... Duluth
§ Jensen, T. J. .... Duluth
§ Jeronimus H. J. .... Duluth
§ Jessico, C. M. .... Duluth
Joffe, H. H. .... Duluth
§ Johnson, K. E. .... Duluth
§ Johnsrud, L. W. .... Chisholm
§†Johnston, R. O. .... Hibbing
§ Jolin, F. M. .... Bovey
Juntunen, R. R. .... Nashwauk
§ Kelly, A. C. .... Duluth
‡ Keyes, R. W. .... Ely
§ Klein, Harry .... Duluth
§ Klein, Wm. A. .... Duluth
§ Knapp, F. N. .... Duluth
§ Knoll, W. V. .... Duluth
§ Kohlbry, C. O. .... Duluth
§ Koskela, A. L. .... Deer River
Koskela, L. E. .... Deer River
§ Kotchevar, F. R. .... Eveleth
§ Krueger, V. R. .... Nopeming
§ La Bree, R. H. .... Duluth
§ Laird, A. T. .... Duluth
§ Latterell, K. E. .... Duluth
* Lenont, C. B. .... Virginia
Lepak, F. J. .... Duluth
§ Litman, S. N. .... Duluth
§ Lovshin, W. C. .... Eveleth
§ Luth, D. V. .... Duluth
MacDonald, R. A. .... Littlefork
§ MacFarlane, P. H. .... Chisholm
§ MacRae, G. C. .... Duluth
§ Magney, F. H. .... Duluth
Magraw, R. M. .... Saint Paul
§ Malmstrom, J. A. .... Virginia
† Marcley, W. J. .... Minneapolis
§ Martin, W. C. .... Duluth
§ Mayne, R. M. .... Nopeming
† McCarty, P. D. .... Ely
† McCoy, M. K. .... Duluth
McDonald, A. L. .... Duluth
§ McDonald, O. G. .... Duluth
§ McHaffie, O. L. .... Duluth
§ McKenna, M. J. .... Grand Rapids
§ McLeod, J. L. .... Grand Rapids
§ McNutt, J. R. .... Duluth
Mead, C. H. .... Duluth
§ Merriman, L. L. .... Duluth
‡ Meyer, J. O. .... Grand Rapids
§ Minty, E. W. .... Duluth
§ Moe, R. J. .... Duluth
Moe, Thos. .... Moose Lake
§ Moehring, H. G. .... Duluth
Mollers, T. P. .... Soudan
Monroe, P. B. .... Cloquet
Monserud, N. O. .... Cloquet
§ Morsman, L. W. .... Hibbing
Moyer, J. B. .... Duluth
Mueller, S. C. .... Duluth
Munson, M. S. .... Barnum
§ Murray, R. A. .... Hibbing
§ Neff, W. S. .... Virginia
§ Nelson, R. L. .... Virginia
§ Nicholson, M. A. .... Duluth
Norberg, C. E. .... Cloquet
§ Nutting, R. E. .... Duluth
§ Olson, A. E. .... Duluth
Olson, A. O. .... Duluth
§ O'Neill, J. C. .... Duluth
‡ Paciotti, V. J. .... Hibbing
§ Papermaster, Ralph .... Two Harbors
† Parker, O. W. .... Duluth
§ Parker, W. H. .... Chisholm
Parson, E. I. .... Duluth
§ Pasek, A. W. .... Cloquet
‡ Pasek, E. A. .... Cloquet
§ Patch, O. B. .... Duluth
† Pearsall, R. P. .... Virginia
§ Pedersen, R. C. .... Duluth
Pennie, D. F. V. .... Duluth
Peterson, E. N. .... Virginia
§ Peterson, J. H. .... Duluth
§ Power, J. E. .... Duluth
Puumala, R. H. .... Cloquet
§ Raadquist, C. S. .... Hibbing
Raattama, J. W. .... Keewatin
Raihala, John .... Virginia
* Raiter, R. F. .... Cloquet
§ Reed, Paul .... Virginia
† Robinson, J. M. .... Goshen, N. Y.
§ Rokala, H. E. .... Virginia
§†Rood, D. C. .... Duluth
Rowe, O. W. .... Duluth
§ Rudie, P. S. .... Duluth
§ Runquist, J. M. .... Duluth
Ryan, Wm. J. .... Duluth
§ Sach-Rowitz, A. .... Moose Lake
§ Salter, R. A. .... Virginia
Sandell, S. T. .... Nopeming
‡ Sanford, J. B. .... Battle Creek, Mich.
§ Sarff, O. E. .... Duluth
Sax, M. H. .... Duluth
Sax, S. G. .... Duluth
Schirber, M. J. .... Grand Rapids
§ Schmid, J. F. .... Duluth
§ Schneider, L. E. .... Duluth
§ Schroder, C. H. .... Duluth
Schweiger, T R. .... Hibbing
§ Sher, D. A. .... Virginia
§ Siegel, J. S. .... Virginia
§ Sinamark, Andrew .... Hibbing
Sisler, C. E. .... Grand Rapids
§ Smith, C. M. .... Duluth
Smith, W. R. .... Grand Marais
Snyker, O. E. .... Ely
§ Spang, A. J. .... Duluth
§ Spang, J. S. .... Duluth
§ Strandjord, N. M. .... Virginia
§†Strathern, M. L. .... Gilbert
§ Strauss, E. C. .... Duluth
§ Strewler, G. J. .... Duluth
§ Strobel, Wm. G. .... Duluth
* Stuart, A. B. .... Cloquet

§ Sutherland, H. N. ....Ely
§ Swedberg, Wm. A. ....Duluth
§ Swenson, A. O. ....Duluth
§*†Taylor, C. W. ....Duluth
§ Teich, K. W. ....Duluth
§ Terrell, B. J. ....Nopeming
§‡Tetlie, J. P. ....Camp Carson, Colo.
§*Tibbetts, M. H. ....Duluth
Tingdale, Carlyle ....Hibbing
Tosseland, N. E. ....Duluth
§ Tuohy, E. L. ....Duluth
§ Urberg, S. E. ....Duluth
Van Ryzin, D. J. ....Duluth
§ Van Valkenberg, J. D....Floodwood
§ Walder, H. J. ....Duluth
§†Walker, A. E. ....Duluth
§ Wallace, M. O. ....Duluth
Walter, F. H. ....International Falls
§ Wells, A. H. ....Duluth
§ Wheeler, D. W. ....Duluth
§ Williams, B. F. P. ....Duluth
Winter, J. A. ....Duluth
§ Young, T. O. ....Duluth
*†Zlatovski, M. L. ....Duluth
§ Zupanc, E. A. ....Duluth

SCOTT-CARVER COUNTY MEDICAL SOCIETY

Regular meetings, second Wednesday of each month
Annual meeting, June
Number of Members: 28

President
Simons, B. H. ....Chasta
Secretary
Rynda, E. R. ....New Prague

† Ahrens, C. F. ......Galveston, Texas
Bratholdt, J. W. ....Watertown
Buck, F. H. ....Shakopee
§ Cervenka, C. F. ....New Prague
§ Doherty, E. M. ....New Prague
§ Hebeisen, M. B. ....Chaska
Heinz, Ivy B. ....Shakopee
Heinz, L. H. ....Shakopee
§ Juergens, H. M. ......Belle Plaine
‡ Kline, R. F. ....Montgomery
§ Kortsch, F. P. ....Prior Lake
§ Kucera, S. T. ....Northfield
Martin, T. P. ....Arlington
Nagel, H. D. ....Waconia
Ninneman, N. N. ....Waconia
† Novak, E. E. ....New Prague
Olson, C. J. ....Belle Plaine
§ Pearson, B. F. ....Shakopee
Pogue, R. E. ....Watertown
§ Ponterio, J. E. ....Shakopee
Rieschl, Elizabeth K. ....Jordan
§ Rynda, E. R. ....New Prague
† Sanford, J. A. ....Savage
Schimelpfenig, G. T. ....Chaska
§ Simons, B. H. ....Chaska
Stahler, P. A. ....Jordan
§†Westerman, Alvin .....Montgomery
§ Westerman, F. C. .....Montgomery

SOUTHWESTERN MINNESOTA MEDICAL SOCIETY

Cottonwood, Jackson, Murray, Nobles, Pipestone and Rock Counties
Regular meetings, on call
Annual meeting, on call
Number of Members: 63

President
Pankratz, P. J. .....Mountain Lake

Secretary
Heiberg, O. M. ....Worthington

§ Arnold, E. W. ....Adrian
§ Balmer, A. I. ....Pipestone
§ Basinger, H. P. ....Windom
Basinger, H. R. ....Mountain Lake
§ Beckering, Gerrit ....Edgerton
§ Benjamin, W. G. ....Pipestone
Bofenkamp, F. W. ....Luverne
† Brown, A. H. ....Pipestone
Carlson, J. V. ....Westbrook
§ Christiansen, H. A. ....Jackson
§ Chunn, S. S. ....Pipestone
† De Boer, Hermanus ....Edgerton
§ Doman, V. W. ....Lakefield
Doms, H. C. ....Slayton
Doms, V. A. ....Slayton
§ Gruys, R. I. ....Windom
§ Hallin, R. P. ....Worthington
§ Halloran, W. H. ....Jackson
§ Halpern, D. J. ....Brewster
§ Harrison, P. W. ......Worthington
§ Heiberg, O. M. ....Worthington
Hitchings, W. S. ....Lakefield
§ Hoyer, L. J. ....Windom
§ Hursh, P. W. ....Slayton
§ Johnson, M. A. ....Storden
§ Karleen, B. N. ....Jackson
§ Kilbride, E. A. ....Worthington
* Kilbride, J. S. ....Worthington
§ Kotval, R. J. ....Pipestone
Laikola, L. A. ....Adrian
§ Lohmann, J. G. ....Pipestone
Maitland, E. T. ....Jackson
† Manson, F. M. ....Worthington
§ Martin, A. C. ....Luverne
§ Minge, R. K. ....Worthington
§ Nealy, D. E. ....Adrian
§ Nelson, C. A. ....Worthington
Nickerson, J. R. ......Heron Lake
§ Pankratz, P. J. .....Mountain Lake
Patterson, H. D. ....Slayton
Philp, R. D.................Windom
Pierson, R. F. ....Slayton
§ Piper, W. A. ......Mountain Lake
§ Robinett, R. W. ......Worthington
Rose, J. T. ....Lakefield
§ Schade, F. L. ....Worthington
Schmidt, J. R. .....Mountain Lake
§ Schutz, E. S.......Mountain Lake
§ Sherman, C. L............Luverne
§ Slater, S. A. ....Worthington
§ Sogge, L. L. ....Windom
§ Sorum, F. T. ....Jasper
§ Stam, John ....Worthington
Stanley, C. R. ....Worthington
Stevenson, B. M. ....Fulda
Stratte, H. C. ....Windom
‡ Watkins, J. A. ....Windom
§ Wells, W. B. ....Jackson
§ Williams, C. A. ....Pipestone
Williams, L. A. ....Minneapolis
Williamson, H. A. ....Heron Lake
Wisness, O. A. ....Slayton
Wolff, H. B. ....Worthington

STEARNS-BENTON COUNTY MEDICAL SOCIETY

Regular meetings, third Thursday of month
Annual meeting, third Thursday in December
Number of Members: 66

President
Nessa, C. B. ....St. Cloud

Secretary
Libert, J. N. ....Saint Cloud

§ Anderson, E. M. ......Saint Cloud
Andrews, Bernice F.....Holdingford
§ Baumgartner, F. H. ....Albany
§ Beuning, J. B. ....Saint Cloud
Brigham, C. F., Sr......Saint Cloud
§ Brigham, C. F., Jr.....Saint Cloud
§ Brimi, R. J. ....Saint Cloud
Broker, H. M. ....Eden Valley
§ Buscher, J. C. ....Saint Cloud
§ Clark, H. B. ....Saint Cloud
Cleaves, W. D. ....Sauk Centre
§ Donaldson, C. S. ....Foley
DuBois, J. F., Jr.......Sauk Centre
DuBois, J. F., Sr. .....Sauk Centre
Engstrom, G. F. ....Belgrade
§ Evans, L. M. ....Sauk Rapids
Fidelman, N. E. ....Foley
§ Fleming, T. N. ....Saint Cloud
§ Friesleben, Wm. ....Sauk Rapids
§ Gaida, J. B. ....Saint Cloud
§ Goehrs, G. H. ....Saint Cloud
Goehrs, H. W. ....Saint Cloud
Grant, J. C. ....Sauk Centre
§ Haberman, Emil ....Osakis
§ Halenbeck, P. L. ....Saint Cloud
† Hemstead, Werner .....Minneapolis
Henry, C. J. ....Milaca
Henry, J. E. ....Milaca
Hoehn, David ....Holdingford
§ Jones, R. N. ....Saint Cloud
§ Kelly, J. F. ....Cold Spring
§ Koop, S. H. ....Richmond
§ Kuhlmann, L. B. ....Melrose
† Lewis, C. B. ....Saint Cloud
§ Libert, J. N. ....Saint Cloud
Lindeman, R. J. ....Paynesville
§ Luckemeyer, C. J. .....Saint Cloud
§ Mahowald, A. ....Albany
§ McDowell, J. P.......Saint Cloud
Meyer, A. A................Melrose
§ Milhaupt, E. N. ....Saint Cloud
§ Musachio, N. F. ....Foley
Myre, C. R. ....Paynesville
§‡Neils, V. E. ....Sauk Rapids
§ Nessa, C. B. ....Saint Cloud
§ O'Keefe, J. P...........Saint Cloud
§ Petersen, R. T. ....Saint Cloud
§ Phares, O. C. ....Saint Cloud
§ Raetz, S. J. ....Maple Lake
§ Reif, H. J. ....Saint Cloud
§ Richards, W. B. ....Saint Cloud
§ Sandven, N. O. ....Paynesville
Schatz, F. J. ....Saint Cloud
Schmitz, E. J. ......Seattle, Wash.
Sherwood, G. E. ....Kimball
§ Simon, T. R. ....Saint Cloud
§ Sisk, H. E. ....Saint Cloud
Stangl, P. E. ....Saint Cloud
Veranth, L. A. ....Saint Cloud
§ Vrtiska, F. L. ....Saint Cloud
§ Walfred, K. A. ....Saint Cloud
Wedes, Deno J. ....Belgrade
§ Wenner, W. T. ....Saint Cloud
§ Wetzel, E. V. ....Saint Cloud
§ Wittrock, L. H. ....Watkins
Zachman, A. H. ....Melrose

STEELE COUNTY MEDICAL SOCIETY

Regular meetings, every two months
Annual meeting, January
Number of Members: 22

President
Lundquist, C. W. ....Owatonna
Secretary
Osborn, D. O. ....Owatonna

Anderson, F. C. ....Owatonna
Arnesen, J. F. ....Owatonna
Berghs, L. V. ....Owatonna
Dewey, D. H. ....Owatonna
Ertel, E. Q. ....Ellendale
Fischer, J. R. ....Owatonna
Hartung, E. H. ....Claremont
Kurtin, H. J. .....Blooming Prairie
Kurtin, J. J.......Blooming Prairie
Lundquist, C. W. ....Owatonna
McEnaney, C. T. ....Owatonna
McIntyre, J. A. ....Owatonna
Melby, Benedik ...Blooming Prairie

† Morehead, D. E. ....Owatonna
Nelson, E. J. ....Owatonna
Olson, A. J...............Owatonna
Osborn, D. O. ....Owatonna
Roberts, O. W. ....Owatonna
Schaefer, J. F. ....Owatonna
Senn, E. W. ....Owatonna
Stransky, T. W. ....Owatonna
Wilkowske, R. J. ....Owatonna

UPPER MISSISSIPPI MEDICAL SOCIETY

Aitkin, Beltrami, Cass, Clearwater, Crow Wing, Hubbard, Koochiching, Lake of the Woods, Morrison, Todd and Wadena Counties
Regular meetings, quarterly
Annual meeting, January
Number of Members: 95

President
Hanover, R. D. ....Little Fork

Secretary
Badeaux, G. I. ....Brainerd

§ Anderson, W. W..........Brainerd
§ Badeaux, G. I. ....Brainerd
§ Beise, R. A. ....Brainerd
Bender, J. H. ....Brainerd
Borgerson, A. H. ......Long Prairie
Brown, H. M. ....Walker
Cardle, G. E. ....Brainerd
Closuit, F. C. ....Aitkin
Cook, J. M. ....Staples
§ Coombs, C. H. ....Cass Lake
† Corrigan, J. E. ....Minneapolis
Craig, C. C. .....International Falls
§ Crow, E. R. ....Ah-Gwah-Ching
Cushing, R. L. ....Brainerd
Davis, Lloyd T.............Wadena
§ Davis, Luther E. ....Wadena
Davis, Thos. L., Jr. ....Wadena
DeWeese, W. J. ....Bemidji
Eiler, John ....Park Rapids
§ Erickson, A. O. ......Long Prairie
Fait, R. V. ....Little Falls
Fine, B. A. ....Crosby
Fitzsimons, Wm. E.........Brainerd
§ Fortier, G. M. A.......Little Falls
Garlock, A. V. ....Bemidji
Garlock, D. W. ....Bemidji
Ghostley, Mary C. ....Puposky
† Gilmore, Rowland ....Crookston
† Grogan, John S. ....Wadena
Groschupf, T. P. ....Bemidji
Grose, F. N. ....Clarissa
§ Hanover, R. D. ....Little Fork
Hartjen, J. K. ....Bemidji
Healy, R. T. ....Pierz
Hendricks, E. J. ....Saint Paul
Higgs, W. W. ....Park Rapids
Hill, W. C. .....Ann Arbor, Mich.
‡ Hoganson, D. E..Camp Rucker, Ala.
† House, Z. E. ....Burbank, Calif.
Houston, D. M. ....Park Rapids
Hubbard, O. E. ....Brainerd
† Johnson, C. E. ....Saint Paul
Johnson, D. L. ....Little Falls
Johnson, E. W. ....Bemidji
Johnson, K. J. ....Bemidji
§ Kanne, E. R. ....Brainerd
§ Kinports, E. B. ..International Falls
§ Knight, E. G. ....Swanville
Larson, L. J. ....Bagley
Laughlin, J. T. ....Grey Eagle
Lee, Hubert W. ....Brainerd
Leggett, Elizabeth....Ah-Gwah-Ching
§ Lenarz, A. J. ....Browerville
Longfellow, Helen W. ....Brainerd
Lund, W. J. ....Staples
§ Marshall, C. M. ....Crosby
McCann, D. F. ....Bemidji
‡ McGeary, M. D.....Oceanside, Calif.
§ Mitby, Irving L........Minneapolis
§ Mosby, M. E. ....Long Prairie
§ Mulligan, A. M. ....Brainerd
Nelson, Bernette G. ......Menahga
Nelson, Bernice A..........Menahga
Nelson, N. P. ....Minneapolis
§ Nixon, J. B. ....Crosby
Olson, Lillian A. ...Ah-Gwah-Ching
Palmer, H. A. ....Blackduck
Parker, C. W. ....Wadena
§ Parker, W. E. ....Sebeka
Petraborg, H. T. ....Aitkin
Pierce, C. H. ....Wadena
Pierce, R. B. ....Wadena
Potek, David ....International Falls
§ Quanstrom, V. E. ....Brainerd
*†Ratcliffe, J. J. ....Aitkin
Ringle, O. F. ....Walker
§ Rozycki, A. T. ....Pine River
Rutherford, W. C. ....Brainerd
§ Schmitz, G. P. ....Little Falls
Simons, E. J. ....Minneapolis
§ Stein, R. J. ....Pierz
Stoy, R. A. ....Little Falls
† Thabes, J. A., Sr. ....Brainerd
§ Thabes, J. A., Jr. ....Brainerd
Vandersluis, C. W. ....Bemidji
§ Watson, A. M. ....Royalton
Watson, Percy T. ......Minneapolis
Watson, S. W. ....Royalton
Whittemore, D. D. ....Bemidji
Wikoff, H. M. ....Bemidji
§ Will, C. B. ....Bertha
§ Will, W. W. ....Bertha
Williams, M. M. ...Ah-Gwah-Ching
§ Wingquist, C. G. ....Crosby
Zeigler, C. M. ....Pine River

WABASHA COUNTY MEDICAL SOCIETY

Annual meeting, first Thursday after the first Monday in October
Other meetings as called by the President
Number of Members: 16

President
Gjerde, Wm. P. ....Lake City

Secretary
Wilson, W. F. ....Lake City

§ Bayley, E. C. ....Lake City
§ Bouquet, B. J. ....Wabasha
§ Bowers, R. N. ....Lake City
Collins, J. S. ....Wabasha
§ Ekstrand, L. M. ....Wabasha
§ Ellis, E. W. ....Elgin
§ Flesche, B. A. ....Lake City
§ Gjerde, W. P. ....Lake City
Glabe, R. A. ....Plainview
§ Mahle, D. G. ....Plainview
Martin, D. A. ....Wabasha
§ Ochsner, C. G. ....Wabasha
† Replogle, W. H...Los Angeles, Calif.
‡ Vaughn, C. G. ....
Ft. Leonard Wood, Mo.
Wellman, T. G. ....Clinton, Iowa
† Wilson, W. F. ....Lake City

WASECA COUNTY MEDICAL SOCIETY

Regular meetings, as decided
Annual meeting, January
Number of Members: 10

President
Oeljen, S. C. G. ....Waseca

Secretary
Ourada, A. L. ....Waseca

§ Davis, R. D. ....Waseca
§†Gallagher, B. J. ....Waseca
‡ Gallagher, W. B. ..Vienna, Austria
§ Hottinger, R. C. ....Janesville
§ McIntire, H. M. ....Waseca
§ Oeljen, S. C. G. ....Waseca
§ Olds, G. H. ....New Richland
§ Ourada, A. L. ....Waseca
§ Swenson, O. J. ....Waseca
§ Ward, C. T. ....Janesville

WASHINGTON COUNTY MEDICAL SOCIETY

Regular meetings, second Tuesday in each month
Annual meeting, second Tuesday in December
Number of Members: 10

President
Ruggles, G. M. ....Forest Lake
Secretary
Boleyn, E. S. ....Stillwater

§ Boleyn, E. S. ....Stillwater
Burseth, E. C..........Forest Lake
§ Carlson, R. E. ....Stillwater
§†Haines, J. H. ....Stillwater
§ Holcomb, J. T. ..Marine-on-St.Croix
Humphrey, W. R.........Stillwater
§ Jenson, J. E.............Stillwater
§ Johnson, R. G. ....Stillwater
Josewski, R. J. ....Stillwater
§ Juergens, M. F. ....Stillwater
§ McCarten, F. M. ....Stillwater
Poirier, J. A. ....Forest Lake
Ruggles, G. M. ....Forest Lake
§ Sherman, C. H. ....Bayport
§ Stuhr, J. W. ....Stillwater
Van Meier, Henry........Stillwater

WEST CENTRAL MINNESOTA MEDICAL SOCIETY

Big Stone, Pope, Stevens, and Traverse Counties
Regular meetings, first Wednesday in March, May, September and November
Annual meeting, first Wednesday in November
Number of Members: 33

President
Barrett, G. L. ....Graceville

Secretary
Gericke, J. T. ....Glenwood

§ Arneson, A. I. ....Morris
§ Barnett, G. L. ....Graceville
§ Behmler, F. W. ....Morris
§ Bergan, Otto ....Clinton
† Bolsta, Charles ....Ortonville
§ Bucher, F. D. ....Starbuck
Dahle, M. B. ....Olivia
§†Eberlin, E. A. ....Glenwood
§ Eide, O. A. ....Hancock
§ Elsey, E. M. ....Glenwood

† Elsey, J. R.	Glenwood
† Fitzgerald, E. T.	Morris
§ Gericke, J. T.	Glenwood
§ Giesen, A. F.	Starbuck
Hedemark, H. H.	Ortonville
Hedermark, T. A.	Ortonville
§ Karn, J. F.	Ortonville
§ Kooda, J. C.	Morris
§ Lindberg, A. L.	Wheaton
§†Linde, Herman	Cyrus
§ Magnuson, A. E.	Wheaton
McIver, B. A.	Lowry
§ Merrill, R. W.	Morris
Muir, W. F.	Browns Valley
Noble, J. H.	Graceville
§ O'Donnell, D. M.	Ortonville
§ Oliver, I. L.	Graceville
§ Plasha, M. K.	Glenwood
† Ransom, M. L.	Hancock
§ Rossberg, R. A.	Morris
§ Salk, R. J.	Herman
§ Swedenburg, P. A.	Glenwood
§ Wagner, N. W.	Graceville

WINONA COUNTY MEDICAL SOCIETY

Regular meeting, first Monday in January, April, July and October
Annual meeting in January

Number of Members: 33

President	
Heise, Paul	Winona
Secretary	
Schmidt, H. R.	Winona
Benoit, F. T.	Winona
Blochowiak, N. P.	Rushford
§ Boardman, D. V.	Winona
§ Christensen, E. E.	Winona
Finkelnburg, W. O.	Winona
§ Hartwich, R. F.	Winona
Heise, Carl v R.	Winona
§ Heise, Paul	Winona
Heise, Philip	Winona
§†Heise, W. F. C.	Winona
§ Heise, W. v R.	Winona
§ Johnston, L. F.	Winona
§ Keyes, J. D.	Winona
§ Loomis, G. L.	Winona
§ Mattison, P. A.	Winona
McLaughlin, E. M.	Winona
§ Meinert, A. E.	Winona
Neumann, C. A.	Lewiston
§ Page, R. L.	St. Charles
§†Robbins, C. P.	Winona
§ Roemer, H. J.	Winona
§ Rogers, C. W.	Winona
§ Satterlee, H. W.	Lewiston
* Schaefer, Samuel	Winona
§ Schmidt, H. R.	Winona
§ Steiner, I. W.	Winona
§†Tweedy, G. J.	Winona
§ Tweedy, J. A.	Winona
§ Tweedy, R. B.	Winona
§ Vollmer, F. J.	Winona
§ Wilson, R. H.	Winona
§ Woltjen, M. J.	Rushford
§ Younger, L. I.	Winona

WRIGHT COUNTY MEDICAL SOCIETY

Regular meetings, not scheduled
Annual meeting, October

Number of Members: 18

President	
W. E. Hall	Maple Lake
Secretary	
Catlin, T. J.	Buffalo
§ Anderson, W. P.	Buffalo
§ Bendix, L. H.	Annandale
§†Catlin, J. J.	Buffalo
§ Catlin, T. J.	Buffalo
§ Ellison, F. E.	Monticello
§ Greenfield, W. T.	Delano
Grundset, O. J.	Montrose
Guilfoile, P. J.	Delano
§ Hall, W. E.	Maple Lake
§ Hart, W. E.	Monticello
Peterson, O. L.	Cokato
§†Ridgway, A. M.	Annandale
§ Roholt, C. L.	Waverly
§ Ryding, Vincent T.	Dallas, Texas
Smorszczok, M.	Monticello
§ Thielen, R. D.	Saint Michael
Thomas, William H.	Howard Lake
§ Thompson, Arthur	Cokato

Alphabetic Roster

Key to Symbols: *Deceased; †Affiliate, Associate or Life Member; ‡In Service

Aagaard, G. N., Jr. ....Minneapolis
Aanes, A. M. ....Red Wing
† Aborn, W. H. ....Hawley
Abraham, A. L. ....Duluth
Abramson, Milton .....Minneapolis
Achor, R. W. P..........Rochester
Adair, A. F., Jr.........Saint Paul
Adams, B. S. ....Hibbing
Adams, F. H. ....Minneapolis
Adams, R. C. ....Rochester
Addy, E. R. ....Gilbert
† Adkins, C. D. ....Minneapolis
† Adkins, C. M. ...Thief River Falls
Adkins, G. H. ....Faribault
Adson, A. W. ....Rochester
Affeldt, D. E. ....Kasson
‡ Aga, John..................Mankato
Agustsson, Hreidar.......Minneapolis
Ahren, E. E. ....Minneapolis
Ahlfs, J. J. ....Caledonia
Ahrens, A. H. ....Saint Paul
Ahrens, A. E. ....Saint Paul
† Ahrens, C. F. .....Galveston, Texas
Ahrens, R. M. ....Saint Paul
† Aitkens, H. B. ....Le Center
Akester, Ward ....Fergus Falls
Akins, W. M. ....Red Wing
Albrecht, H. H. ....Chisago City
Alcorn, Wm. J............Wabasso
† Alden, J. F., Jr.........Saint Paul
Aldrich, R. A. ....Rochester
Alexander, H. A. ......Minneapolis
Alger, E. W............Minneapolis
Aling, C. A. ....Minneapolis
Allen, E. V. N. ....Rochester
Altnow, H. O. ....Minneapolis
† Amberg, Saml. ....Rochester
Andersen, H. A. ....Rochester
Andersen, S. C. ....Minneapolis
Anderson, A. D. ....Rochester
Anderson, A. S. ....Minneapolis
Anderson, C. D. ....Chicago, Ill.
Anderson, Chester A. ......Madison
Anderson, Chester A.........Hector
Anderson, D. D. ......Minneapolis
Anderson, D. P., Jr..........Austin
Anderson, D. M. ...Fargo, No. Dak.
Anderson, D. C. ....Olivia
Anderson, E. D. ....Minneapolis
Anderson, E. M. ......Saint Cloud
Anderson, E. R. ....Minneapolis
‡ Anderson, Frank J............
Fort Leavenworth, Kan.
Anderson, F. C. ....Owatonna
Anderson, H. J. ....Austin
Anderson, J. J. ....Mankato
Anderson, K. W. ......Minneapolis
Anderson, M. J. ....Rochester
Anderson, M. W. ....Rochester
Anderson, R. E. ....Willmar
Anderson, S. H. ....Red Wing
Anderson, T. P. ....Rochester
Anderson, U. S. ....Minneapolis
Anderson, W. P. ....Buffalo
Anderson, W. E.........Clearbrook
Anderson, W. W. ....Brainerd
Anderson, Wm. H. .....Minneapolis
Anderson, Wm. T. .....Minneapolis
Andreassen, E. C. ....Saint Paul
Andrejek, A. R. ....Minneapolis
Andresen, K. D'A .....Minneapolis
Andrews, B. F. ....Holdingford
Andrews, R. S. ....Minneapolis
Andrews, R. N. ....Mankato
Ankner, F. J. ....Minneapolis
Arata, J. E. ....Rochester
Arends, A. L. ....Cokato
Arey, S. L. ....Minneapolis
† Arhelger, Stuart ....Minneapolis
Arko, J. L. ....Hibbing
Arlander, C. E. ....Minneapolis
Arling, L. S. ....Minneapolis
* Armstrong, E. L...........Duluth
Armstrong, R. S.........Winnebago
Arndt, H. Wm. .....Detroit Lakes
Arnesen, J. F. ....Owatonna
Arneson, A. I. ....Morris
Arnold, Anna W. ......Minneapolis
* Arnold, D. C. ....Minneapolis
Arnold, E. Wm...............Adrian
Arnquist, A. S. ....Saint Paul

Arnson, J. M. ....Benson
Arny, F. P. ....Saint Paul
Arvidson, C. G. ....Minneapolis
Arzt, P. K.............Saint Paul
Athens, A. G. ....Duluth
Atmore, Wm. G. ....Rochester
† Aune, Martin ....Minneapolis
† Aurand, Wm. H........Minneapolis
Aurelius, J. R. ....Saint Paul
† Ausman, C. F. ...South Saint Paul
Ausman, D. R. ....Saint Paul
Austin, G. W. .....Memphis, Tenn.
Ayres, R. W. ......Little Rock, Ark.

Babb, F. S. ....Saint Paul
Bachnik, F. W. ....Hibbing
Backus, R. W. ....Nopeming
Bacon, D. K. ....Saint Paul
Badeaux, George I. ....Brainerd
Bagby, G. W. ....Rochester
Baggenstoss, A. H. ......Rochester
Bagley, C. M. ....Duluth
Bagley, Elizabeth C.........Duluth
Bagley, Wm. R. ....Duluth
Bahn, R. C. ....Rochester
Baich, V. M. ....Bovey
Bain, R. C...............Rochester
Bair, H. L. ....Rochester
Baird, J. W. ....Minneapolis
Baken, M. P. ....Minneapolis
Baker, A. B. ....Minneapolis
Baker, A. T. ....Minneapolis
Baker, A. C. ....Fergus Falls
* Baker, E. L. ....Minneapolis
Baker, G. S ....Rochester
Baker, H. R. ....Hayfield
Baker, Jeannette L.....Fergus Falls
† Baker, Looe ....Minneapolis
Baker, M. E. ....Minneapolis
Baker, N. H. ....Fergus Falls
Baker, P. L. ....Rochester
Baker, R. L. ....Hayfield
Bakkila, H. E. ....Duluth
Balcome, M. M. ....Saint Paul
† Balfour, D. C. ....Rochester
Balfour, Wm. M..........Rochester
Balkin, S. G. ....Minneapolis
Ball, W. P. ....Muncie, Ind.
Balmer, A. I. ....Pipestone
Bank, H. E. ....Portland, Ore
Banner, E. A. ....Rochester
Bannon, Wm. G..........Rochester
*†Barber, J. P. ....Minneapolis
Barber, John R...........Rochester
Barber, T. E. ....Austin
Bardon, Richard ....Duluth
Bargen, J. A. ....Rochester
Barker, J. D. ....Duluth
Barker, N. W. ....Rochester
Barnes, A. R. ....Rochester
Barnett, J. M............Saint Paul
Barnett, G. L. ....Graceville
Barney, L. A. ....Duluth
Barno, Alex ....Minneapolis
Baronofsky, I. D.......Minneapolis
Barr, L. C. ....Albert Lea
Barr, M. M. ....Minneapolis
Barr, R. N. ....Saint Paul
Barr, Wm. H. ....Wells
Barrett, E. E. ....Duluth
‡ Barron, J. J. ...Camp McCoy, Wis.
Barron, Moses ....Minneapolis
Barron, S. S. ....Minneapolis
Barry, L. W. ....Saint Paul
† Barsness, Nellie O. N. ..Saint Paul
Bartholomew, L. G. ......Rochester
Basinger, H. R. .....Mountain Lake
Basinger, H. P.............Windom
Baskin, R. H. ....Rochester
Bastron, J. A. ....Rochester
Batdorf, B. N. ....Good Thunder
Bauer, E. L. ....Saint Paul
Baumgartner, F. H..........Albany
† Baxter, S. H...........Minneapolis
Bayley, E. C. ....Lake City
Bayard, E. D. ....Rochester
Beach, Northrup ....Minneapolis
Beahrs, O. H. ....Rochester
† Beals, Hugh ....Saint Paul

† Beard, A. H. ....Wayzata
Beard, E. F. ....Rochester
† Becker, A. M. ....Minneapolis
Becker, F. T. ....Duluth
Becker, S. Wm., Jr.......Rochester
Beckering, Gerrit ....Edgerton
Bedford, E. Wm. .....Minneapolis
Beech, R. H. ....Saint Paul
Beek, Harvey O..........Saint Paul
Beer, J. J. ....Saint Paul
Begley, J. W. ....Rochester
‡ Behling, F. L. ....Moorhead
Behmler, F. W. ....Morris
Behr, O. K. ....Crookston
Beirstein, Saml. ....Minneapolis
Beise, R. A. ....Brainerd
Beiswanger, R. H.......Minneapolis
Belding, III, H. H........Rochester
Bell, C. C. ....Saint Paul
† Bell, E. T. ....Minneapolis
Bellegie, N. J. ....Rochester
Bellomo, James ....Saint Paul
Bellville, T. P. ....Minneapolis
Bender, J. H..............Brainerd
Bender, L. F. ....Rochester
Bendix, L. H. ....Annandale
Benedict, W. H. ....Rochester
Benedict, Wm. L. ....Rochester
Benell, O. E...............Virginia
Benepe, J. L. ....Saint Paul
Benesh, L. A. ....Minneapolis
† Benjamin, A. E. ....Minneapolis
Benjamin, E. G. ....Minneapolis
Benjamin, H. G. ......Minneapolis
Benjamin, W. G. ....Pipestone
*†Benn, F. G. ....La Mesa, Calif.
Bennett, H. S. ....Cleveland, O.
Bennett, W. A. ....Rochester
† Bennion, P. H. ....Isway, Mont.
Benoit, F. T. ....Winona
‡ Benson, L. M...Camp Rucker, Ala.
Bentley, N. P...........Saint Paul
Benton, P. C. ....Minneapolis
Benua, R. S. ....Rochester
Benz, E. J. ....Rochester
Bepko, Marie K. ....Cloquet
Berdez, G. L. ....Duluth
Berens, James ....Rochester
Berg, C. C. ....Excelsior
Bergan, Otto................Clinton
Bergan, R. O.................Duluth
Berge, D. O. ....Roseau
Berge, H. L. ....Mora
Berger, A. G. ....Minneapolis
Bergh, G. S............Minneapolis
Bergh, S. M............Minneapolis
Berghs, L. V.............Owatonna
Bergman, O. B.........Saint James
Bergquist, K. E. ....Battle Lake
Berkman, D. M...........Rochester
Berkman, J. M...........Rochester
Berkwitz, N. J.........Minneapolis
Berlin, A. S. ....Hallock
Berman, Reuben ....Minneapolis
Bernatz, P. E. ....Rochester
Bernstein, Wm. C. .....Minneapolis
Bessesen, A. N., Jr......Minneapolis
Bessesen, D. H. ....Minneapolis
Bessesen, Wm. A. .....Minneapolis
Beuning, J. B. ....Saint Cloud
Beyer, E. F. ....Braham
Bianco, Anthony J., Jr.......Duluth
Bianco, A. J. ....Duluth
Bicek, J. F. ....Saint Paul
Bickel, Wm. H...........Rochester
† Biedermann, Jacob.Thief River Falls
Bieter, R. N. ....Minneapolis
Bigelow, C. E..........Dodge Center
Bigler, E. E. ....Perham
Bigler, I. E. ....Perham
Bilka, P. J. ....Minneapolis
Billings, R. E. ....Franklin
Binder, M. R. ....Minneapolis
† Binet, H. E. ....Grand Rapids
† Binger, H. E. ......Phoenix, Ariz.
Black, B. M. ....Rochester
Black, E. J. ....Saint Paul
Black, Wm. A. ....New Ulm
Blackburn, C. M. ....Rochester
Blackmore, S. C. ....Biwabik
Blake, A. J. ....Hopkins

†	Blake, James	Hopkins
	Blake, J. A.	Hopkins
†	Blake, P. S.	Hopkins
†	Blakey, A. R.	Osakis
	Blochowiak, N. P.	Rushford
	Block, M. A.	Rochester
	Block, Wm. J., Jr.	Rochester
	Bloedel, T. J. G.	Osseo
*	Bloemendaal, E. J. G.	Lake Park
	Blomberg, Wm. R.	Princeton
	Bloom, N. B.	Minneapolis
	Blumberg, H. B.	Fairmont
	Blumenthal, J. S.	Minneapolis
	Boardman, D. V.	Winona
	Bock, R. A.	Saint Paul
	Bockman, M. W. H.	Minneapolis
	Bodaski, A. A.	Le Center
‡	Bodelson, A. H.	Pensacola, Fla.
†	Boeckmann, Egil	Saint Paul
	Boehrer, J. J., Jr.	Minneapolis
	Bofenkamp, Benj.	Minneapolis
	Bofenkamp, F. Wm.	Luverne
	Bohn, D. G.	Minneapolis
	Boies, L. R.	Minneapolis
	Bolender, H. L.	Saint Paul
	Boleyn, E. S.	Stillwater
	Boline, C. A.	Battle Lake
†	Bolsta, Chas.	Ortonville
	Bolz, J. A.	Grand Rapids
	Boman, P. G.	Duluth
	Boody, G. J., Jr.	Dawson
	Booren, J. C.	Duluth
†	Booth, A. E.	Minneapolis
†	Boothby, W. M.	Randolph Field, Texas
	Borden, C. W.	Minneapolis
	Boreen, C. A.	Minneapolis
	Borg, J. F.	Saint Paul
	Borgerson, A. H.	Long Prairie
	Borgeson, E. J.	Minneapolis
	Borman, C. N.	Minneapolis
	Bosland, H. G.	Willmar
	Bossert, C. S.	Mora
	Bostwick, J. L.	Rochester
	Boswell, J. T.	Wanamingo
	Bottolfson, B. T.	Moorhead
	Boucek, R. J.	Rochester
†	Bouma, L. R.	Saint Paul
	Bouquet, B. J.	Wabasha
	Bowen, R. L.	Hibbing
	Bowers, G. G.	Minneapolis
	Bowers, R. N.	Lake City
	Boyd, D. A., Jr.	Rochester
	Boyd, L. M.	Alexandria
	Boyer, G. S.	Crookston
†	Boyer, Saml. H.	Duluth
	Boyer, Saml. H., Jr.	Duluth
	Boynton, Bruce	Ada
	Boynton, Ruth F.	Minneapolis
	Boysen, Herbert	Madelia
†	Boysen, Peter	Bemidji
	Braasch, J. W.	Rochester
†	Braasch, Wm. E.	Rochester
	Braceland, F. J.	Rochester
	Brand, Geo. D.	Saint Paul
†	Brand, Wm. A.	Redwood Falls
	Brandenburg, R. O.	Rochester
	Branham, D. S.	St. Peter
	Bratholdt, J. W.	Watertown
	Bratrud, A. F.	Minneapolis
†	Bratrud, Edward	Thief River Falls
	Bratrud, Theo. E.	Thief River Falls
	Bratrude, E. J.	St. James
	Braun, O. C.	Grand Rapids
	Bray, E. R.	Saint Paul
	Bray, P. N.	Duluth
	Bray, R. B.	Rapid City, S. D.
	Bregel, F. L.	St. James
†	Breitenbucher, R. B.	Minneapolis
	Brekke, H. J.	Minneapolis
	Bresette, J. E.	Rochester
	Brickley, P. M.	Rochester
	Briggs, J. F.	Saint Paul
	Brigham, C. F.	St. Cloud
	Brigham, C. F., Jr.	St. Cloud
	Brill, Alice K.	Minneapolis
	Brimi, R. J.	St. Cloud
	Brindley, C. O.	Rochester
	Brink, A. A.	Baudette
	Brink, D. M.	Hutchinson
	Broadie, T. E.	Saint Paul
	Broders, A. C.	Temple, Texas
	Brodie, W. D.	Saint Paul
	Broker, H. M.	Eden Valley
	Brooker, W. J.	Duluth
	Brooks, C. N.	Minneapolis
	Brotchner, R. J.	Saint Paul
†	Brown, A. H.	Pipestone
†	Brown, E. D.	Paynesville
	Brown, H. A.	Rochester
	Brown, H. M.	Walker
†	Brown, J. C.	Saint Paul
	Brown, J. R.	Rochester
	Brown, P. W.	Rochester
	Brown, Wm. D.	Minneapolis
	Bruhl, H. H.	Faribault
	Brunsting, L. A.	Rochester
	Brusegard, J. F.	Red Wing
	Brutsch, G. C.	Minneapolis
	Brzustowicz, R. J.	Rochester
	Bucher, F. D.	Starbuck
	Buchstein, H. F.	Minneapolis
	Buck, F. H.	Shakopee
	Buckley, R. P.	Duluth
	Buesgens, R. H.	Waterville
	Buie, L. A.	Rochester
	Buirge, R. E.	Minneapolis
	Bulinski, T. J.	Saint Paul
	Bulkley, Kenneth	Minneapolis
	Bunker, B. W.	Anoka
	Burch, E. P., II	Saint Paul
†	Burch, F. E.	Saint Paul
	Burchell, H. B.	Rochester
‡	Burgert, E. O., Jr.	Ft. Sam, Houston, Texas
	Burgess, H. M.	Rochester
	Burke, E. C.	Rochester
	Burklund, E. C.	Saint Paul
	Burlingame, D. A.	Saint Paul
	Burmeister, R. O.	Saint Paul
*	Burnap, W. L.	Fergus Falls
	Burnham, W. H.	Minneapolis
	Burns, Catherine	Albert Lea
	Burns, F. M.	Milan
	Burns, M. A.	Milan
	Burns, R. M.	Saint Paul
	Burseth, E. C.	Forest Lake
	Burton, C. G.	Saint Paul
	Buscher, J. C.	St. Cloud
	Bush, R. P.	Saint Paul
	Bushard, W. J.	Minneapolis
	Busher, H. H.	Saint Paul
	Butcher, Wm. A.	Rochester
	Butin, J. W.	Rochester
	Butler, D. B.	Houston, Tex.
	Butler, J. K.	Cloquet
	Butt, Hugh R.	Rochester
	Butturff, C. R.	Freeborn
	Butzer, J. A.	Mankato
	Buzzelle, L. K.	Minneapolis
	Cable, M. L.	Minneapolis
	Cabot, C. M.	Minneapolis
	Cabot, V. S.	Minneapolis
	Cady, L. H.	Minneapolis
	Cain, C. L.	Saint Paul
	Cain, J. C.	Rochester
	Cain, J. H.	Hoffman
	Cairns, R. J.	Redwood Falls
†	Calhoun, F. W.	Albert Lea
	Callahan, F. F.	Saint Paul
	Cameron, I. L.	Minneapolis
	Cameron, J. H.	Crookston
	Camp, J. D.	Rochester
	Campbell, D. C.	Rochester
	Campbell, L. M.	Minneapolis
	Campbell, O. J.	Minneapolis
	Canfield, W. W.	St. Peter
	Cantwell, Wm. F.	International Falls
	Caplan, Leslie	Minneapolis
	Card, Wm. H.	Minneapolis
*	Cardle, A. E.	Minneapolis
	Cardle, G. E.	Brainerd
	Carey, J. B.	Minneapolis
	Carey, J. M.	Rochester
	Carlander, L. W., Jr.	Minneapolis
	Carley, W. A.	Saint Paul
	Carlisle, J. C.	Rochester
	Carlson, A. E.	Warren
	Carlson, C. E.	Alexandria
	Carlson, J. V.	Westbrook
	Carlson, Lawrence	Minneapolis
	Carlson, L. T.	Minneapolis
	Carlson, R. E.	Stillwater
	Caron, R. P.	Minneapolis
	Carr, David T.	Rochester
	Carroll, T. T.	Rochester
	Carroll, Wm. C.	Saint Paul
	Carryer, H. M.	Rochester
	Cashin, J. C.	Adams, Mass.
	Caspers, C. G.	Minneapolis
†	Catlin, J. J.	Buffalo
	Catlin, T. J.	Buffalo
	Cavanor, F. T.	Minneapolis
	Cedarleaf, C. B.	Detroit Lakes
	Ceder, E. T.	Minneapolis
	Ceplecha, S. F.	Redwood Falls
	Cervenka, C. F.	New Prague
	Chadbourn, C. R.	Saint Paul
	Chadbourn, W. A.	Litchfield
	Chalgren, Wm. S.	Mankato
	Challman, S. A.	Minneapolis
	Chambers, W. C.	Blue Earth
	Chance, D. P.	Rochester
	Chapman, C. B.	Minneapolis
	Chapman, T. L.	Duluth
	Chatterton, C. C.	Saint Paul
	Chermak, F. G.	International Falls
	Chesley, A. J.	Saint Paul
	Childs, D. S., Jr.	Rochester
	Chisholm, T. C.	Minneapolis
	Chriss, John W.	Rochester
	Christensen, C. H.	Duluth
	Christensen, E. E.	Winona
	Christensen, L. E.	Minneapolis
	Christensen, N. A.	Rochester
	Christiansen, A.	Saint Paul
	Christiansen, H. A.	Jackson
	Christianson, H. W.	Minneapolis
	Christie, D. P.	Rochester
	Christoferson, L. A.	Fargo, N. D.
	Chunn, S. S.	Pipestone
	Clagett, O. T.	Rochester
	Clark, C. L.	Duluth
	Clark, Elizabeth A.	Duluth
	Clark, H. B.	St. Cloud
	Clark, H. B., Jr.	Minneapolis
	Clark, I. T.	Duluth
	Clark, L. Wm.	Spring Valley
	Clark, III, P. L.	Rochester
	Clarke, E. K.	Minneapolis
	Clay, L. B.	Minneapolis
	Claydon, H. F.	Red Wing
	Cleaves, Wm. D.	Sauk Centre
†	Clement, J. B.	Lester Prairie
	Clifford, G. W.	Alexandria
	Clifton, T. A.	Chatfield
	Closuit, F. C.	Aitkin
	Clothier, E. F.	Elk River
	Cochrane, B. B.	Saint Paul
	Cochrane, R. F.	Minneapolis
	Coddon, W. D.	Saint Paul
	Coe, John I.	Minneapolis
	Cohen, B. A.	Minneapolis
	Cohen, E. B.	Minneapolis
	Cohen, Ellis N.	Newton, Mass.
	Cohen, M. M.	Minneapolis
	Cohen, S. S.	Oak Terrace
	Colby, W. L.	Saint Paul
	Cole, J. P.	Rochester
	Cole, W. H.	Saint Paul
	Coll, J. J.	Duluth
†	Collie, H. G.	St. Petersburg, Fla.
†	Collins, A. N.	Moose Lake
	Collins, J. S.	Wabasha
	Colp, E. A.	Minneapolis
	Combacker, L. C.	Fergus Falls
	Comfort, M. W.	Rochester
	Condit, Wm. H.	Minneapolis
	Conley, F. W.	Duluth
	Conley, R. H.	Mankato
	Connolly, C. J.	Saint Paul
	Connor, C. E.	Saint Paul
	Cook, C. K.	Saint Paul
	Cook, J. R.	Rochester
	Cook, J. M.	Staples
	Coombs, C. H.	Cass Lake
	Cooley, J. C.	Rochester
	Cooper, C. C.	Saint Paul
	Cooper, I. S.	New York, N. Y.
	Cooper, J. P.	Excelsior
	Cooper, M. D.	Winnebago
†	Corbett, J. F.	Minneapolis
	Corbin, K. B.	Rochester
	Corniea, A. D.	Minneapolis
	Correa, D. H.	Minneapolis
†	Corrigan, J. E.	Minneapolis
	Cosgriff, J. A.	Olivia
	Cosgriff, J. A., Jr.	Olivia
	Coulter, H. E.	Madelia
	Counseller, V. S.	Rochester
	Countryman, R. S.	Saint Paul
	Courtin, R. F.	Rochester
	Covell, W. W.	St. Peter
	Coventry, M. B.	Rochester
	Coventry, Wm. A.	Duluth
	Coventry, Wm. D.	Duluth
	Covey, K. W.	Mahnomen
	Cowan, D. W.	Minneapolis
*	Cowern, E. Wm.	No. Saint Paul
	Craig, C. C.	International Falls
	Craig, D. M.	Saint Paul
	Craig, M. Elizabeth	Minneapolis
	Craig, W. McK.	Rochester
	Cranmer, R. R.	Minneapolis
	Cranston, R. W.	Minneapolis
	Creevy, C. D.	Minneapolis
	Creighton, R. H.	Minneapolis
	Crenshaw, J. L., Jr.	Rochester
†	Crenshaw, J. L.	Sanford, Fla.
	Critchfield, L. R.	Saint Paul
	Crombie, F. J.	No. Saint Paul
	Cronwell, B. J.	Austin
	Crow, E. R.	Ah-Gwah-Ching
	Crowley, J. H.	Saint Paul
‡	Crudo, V. D.	Ft. Sam, Houston, Texas
	Crump, J. W.	Saint Paul
	Crumpacker, E. L.	Rochester
	Culligan, J. M.	Saint Paul
	Culligan, L. C.	Minneapolis
	Culp, O. S.	Rochester
	Culver, L. G.	Saint Paul

Cundy, D. T. ....Minneapolis
Curtis, R. A. ....Le Center
Curtiss, R. K. ....Rochester
Cushing, R. L. ....Brainerd
† Cutts, George ....Minneapolis

Dady, E. E. ....Minneapolis
Daehlin, Rolf ....Fergus Falls
Dahl, E. O. ....Minneapolis
† Dahl, G. A. ....Mankato
Dahl, J. A. ....Minneapolis
Dahle, M. B. ....Olivia
Dahlin, D. C. ....Rochester
Dahlstet, J. P. ....Mankato
† Daignault, Oscar ....Benson
Dale, L. N. ....Red Lake Falls
Daly, David ....Rochester
Danford, K. A. ....Mahnomen
Daniel, D. H. ....Minneapolis
† Danielson, K. A. ....Litchfield
Danielson, L. ....Litchfield
Dargay, C. P. ....Minneapolis
* Daugherty, E. B. Marine-on-St. Croix
Daugherty, G. W. ....Rochester
Davis, A. C. ....Rochester
Davis, Edw. V. ....Saint Paul
Davis, Geo. D. ....Rochester
* Davis, I. G. ....Rushford
Davis, J. C. ....Minneapolis
Davis, L. T. ....Wadena
Davis, L. F. ....Wadena
Davis, R. D. ....Waseca
Davis, R. M. ....Marion, Ind.
Davis, R. E. ....Rochester
Davis, T. L. ....Wadena
Davis, Wm. I. ....Mound
Dawson, J. R..............Saint Paul
Day, Lois A..............Saint Paul
Dearing, Wm. H., Jr. ....Rochester
† DeBoer, Hermanus ....Edgerton
Decker, C. H. ....Saint Paul
* Dedolph, Karl ....Saint Paul
† Dedolph, Theo. H. ....Braham
DeForest, R. E. ....Rochester
DeKruif, Hendrik .....Fergus Falls
Delmore, J. L. ....Roseau
Delmore, J. L., Jr. ....Roseau
Delmore, R. J. ....Roseau
Del Plaine, C. W. ......Minneapolis
Demo, R. A. ....Albert Lea
Denman, A. V. ....Mankato
Dennis, Clarence ......Minneapolis
Derauf, B. I. ....Saint Paul
Deters, D. C. ....Saint Paul
Detjen, E. D. ....Bigfork
Devereaux, T. J. ....Wayzata
Devine, K. D. ....Rochester
DeWeerd, J. H. ....Rochester
Deweese, W. J. ....Bemidji
Dewey, D. H. ....Owatonna
† Dickson, T. H. ....Saint Paul
Didcoct, J. W. ....Rochester
Diehl, H. S. ....Minneapolis
Diessner, G. R. ....Rochester
Diessner, H. D. ....Minneapolis
Dillard, P. G., Jr. ......Rochester
Dille, D. E. ....Litchfield
Dixon, C. F. ....Rochester
Doane, J. C. ....Rochester
Dockerty, M. B. ....Rochester
Dodds, Wm. C. ......Detroit Lakes
Dodge, Henry W., Jr. ....Rochester
Doherty, E. M. ....New Prague
* Dolder, F. C. ....Eyota
Doman, V. Wm. ....Lakefield
Doms, H. C. A. ....Sl
Doms, V. A. ....Slayton
Donald, T. C., Jr. ....Rochester
Donaldson, C. S. ....Foley
Donoghue, F. E. ....Rochester
Donohue, P. F. ....Saint Paul
Donovan, D. L. ....Albert Lea
Dordal, John ....Sacred Heart
Dorge, R. I. ....Minneapolis
Dornberger, G. R. ....Rochester
Dornblaser, H. B. ......Minneapolis
Dorsey, G. C. ....Minneapolis
Douglass, B. E. ....Rochester
Doust, Wm. C. ....Rochester
Dovenmuehle, R. H. ....Hastings
Dowidat, R. W. ....Minneapolis
Doxey, G. L. ....Minneapolis
Doyle, G. C. ....Duluth
Doyle, L. O. ....Minneapolis
Drake, C. B. ....Saint Paul
Drake, C. R. ....Minneapolis
† Drake, F. A. ....Lanesboro
Dredge, H. P. ....Sandstone
‡ Dredge, T. E. .San Francisco, Calif.
Drexler, Geo. W. ......Blue Earth
Drill, Herman E. ....Hopkins
† Drips, Della G. ....Rochester
* Drought, W. W. ......Fergus Falls

Dry, Thos. J. ....Rochester
Dubbe, F. H. ....New Ulm
DuBois, J. F. ....Sauk Centre
DuBois, J. F., Jr. .....Sauk Centre
Duff, E. R. ....Minneapolis
†*Dumas, A. G. ....Minneapolis
Duncan, D. K. ....Rochester
Duncan, J. W. ....Moorhead
† Dungay, N. S. ....Northfield
Dunlap, E. H. ....Minneapolis
Dunlap, R. W. ....Rochester
Dunn, James N. ....Saint Paul
Dupont, J. A. ....Excelsior
Duryea, W. M. ....Minneapolis
DuShane, J. W. ....Rochester
† Dutton, C. E. ....Minneapolis
Dvorak, B. A. ....Minneapolis
Dwan, P. F. ....Minneapolis
Dworsky, S. D. ....Minneapolis
Dysterheft, A. F. ....Gaylord

Earl, Geo. A. ....Saint Paul
Earl, John R. ....Saint Paul
Eaton, L. M. ....Rochester
Eberley, T. S. ....Benson
† Eberlin, Edw. A. ....Glenwood
Eby, Lee G. ....Rochester
Eckdale, J. E. ....Marshall
Eckles, Nylene ....Minneapolis
Eckman, P. F. ....Duluth
Eckman, R. J. ....Duluth
Ede, Mitchell ....Rochester
Edlund, Gustaf ....Saint Paul
Edwards, J. E. ....Rochester
Edwards, J. W. ....Saint Paul
Edwards, L. G. ....Saint Paul
† Edwards, R. T. ....Columbus, Ohio
Edwards, T. J. ....Saint Paul
Egge, S. G. ....Albert Lea
Eginton, C. T. ....Saint Paul
Ehrenberg, C. J. ......Minneapolis
Ehrlich, S. P. ....Minneapolis
Eich, M. A. ....Minneapolis
Eide, O. A. ....Hancock
Eiler, John ....Park Rapids
Eisenstadt, D. H. ......Minneapolis
Eisenstadt, Wm. S. ....Minneapolis
Eitel, Geo. D. ....Minneapolis
Ekblad, J. W. ....Duluth
Eklund, C. D. ....Brookston
Ekstrand, L. M. ....Wabasha
Elias, Frank J. ....Duluth
Elkins, Earl C. ....Rochester
Ellingson, A. R. ......Detroit Lakes
Ellis, Earl Wm. ....Elgin
Ellis, F. H. ....Rochester
Ellison, D. E. ....Minneapolis
Ellison, F. E. ....Monticello
Elsey, Edw. M. ....Glenwood
† Elsey, James R. ....Glenwood
Ely, O. S. ....Saint Paul
Emanuel, K. Wm. ....Duluth
Emerson, E. C. ....Saint Paul
Emerson, E. E. ....Osakis
Emmett, J. L. ....Rochester
Emmons, R. W. ....Saint Paul
Emond, A. J. ....Farmington
Emond, J. S. ....Farmington
Endress, E. K. ....Saint Paul
Engberg, E. J. ....Faribault
Engel, R. C. H. ....Cambridge
Engelhart, P. C. ....Minneapolis
† Englund, E. F. ....Minneapolis
Engstrand, O. J. ......Minneapolis
Engstrom, G. F. ....Belgrade
Engstrom, Robert ....Mankato
Enroth, O. E. ....Saint Paul
Eppard, R. M. ....Cloquet
Epperson, D. P. ....Rochester
Erdal, O. A. ....Albert Lea
Erich, J. B. ....Rochester
Erickson, A. O. ......Long Prairie
Erickson, C. O. ....Minneapolis
Erickson, D. J. ....Rochester
Erickson, Eskil ....Halstad
Erickson, L. F. ....Minneapolis
Erickson, R. F. ....Minneapolis
Ericson, R. M. ....Minneapolis
Ericson, Swan ....Le Sueur
Ernest, G. C. H. St. Petersburg, Fla.
Ersfeld, M. P. ....Saint Paul
Ertel, E. Q. ....Ellendale
† Eshelby, E. C. ....Saint Paul
* Esser, O. J. ....New Ulm
Esser, R. A. ....Rochester
Estes, J. E. ....Rochester
Estrem, C. O. ....Fergus Falls
Estrem, R. D. ....Fergus Falls
Estrem, T. A. ....Hibbing
† Eusterman, G. B. ....Rochester
Eustermann, J. J. ....Mankato
Evans, E. T. ....Minneapolis
Evans, L. M. ....Sauk Rapids

† Evarts, A. B. ....Rochester
Evert, J. A., Jr. ....Saint Paul
Ewens, H. B. ....Virginia

Faber, J. E. ....Rochester
† Fahey, Edw. W. ....Saint Paul
Fahr, Geo. E. ....Minneapolis
Fait, R. V. ....Little Falls
Falsetti, F. P. ....Rochester
Fansler, W. A. ....Minneapolis
Farkas, J. V. ....Saint Paul
† Farrish, R. C. ....Sherburn
Faulconer, Albert, Jr. ....Rochester
Faulkner, J. W. ....Rochester
Fawcett, A. M. ....Renville
Fawcett, K. R. ....Duluth
Fee, John G. ....St. Paul
Feeney, J. M. ....Minneapolis
Feigal, D. W. ....Wayzata
Feigal, Wm. M. ..Thief River Falls
Feinstein, J. Y. ....Minneapolis
Feldmann, F. M. ..Bronxville, N. Y.
Felion, A. J. ....Saint Paul
Fellows, M. F. ....Duluth
Fenger, E. P. K. ......Oak Terrace
† Ferguson, J. C. ....Saint Paul
Ferguson, Wm. C. ...Walnut Grove
Ferris, D. O. ....Rochester
Fesenmaier, O. B. ......New Ulm
Fesler, H. H. ....Saint Paul
Fidelman, N. E. ....Foley
Field, A. H. ....Farmington
Figi, F. A. ....Rochester
Fine, B. A. ....Crosby
Fingerman, D. L. ......Minneapolis
Fink, D. L. ....Saint Paul
Fink, Leo Wm. ....Minneapolis
Fink, W. H. ....Minneapolis
Finkelnburg, W. O. ....Winona
Fisch, H. M. ....Austin
Fischer, M. McC. ....Duluth
Fischer, J. R. ....Owatonna
Fisher, D. W. ....Saint Paul
Fisher, Isadore I. ......Minneapolis
Fisher, J. M. ....Willmar
Fisketti, Henry ....Duluth
† Fitzgerald, D. F. ....Wayzata
† Fitzgerald, E. T. ....Morris
Fitzpatrick, T. B. ....Rochester
Fitzsimons, Wm. E. ......Brainerd
Fjeldstad, C. A. ....Minneapolis
Flagg, G. B. ....Minneapolis
Flanagan, H. F. ....Saint Paul
Flanagan, J. R. ....Rochester
Flanagan, L. G. ....Austin
Flancher, L. H. ....Crookston
Flannery, H. F. ....Saint Paul
Fleeson, Wm. H. ......Minneapolis
† Fleming, A. S. ....Minneapolis
Fleming, D. S. ....Minneapolis
Fleming, T. N. ....St. Cloud
Flesche, B. A. ....Lake City
Fliehr, R. R. ....Minneapolis
Flink, E. B. ....Minneapolis
‡ Flinn, J. B. .....Pt. Blakely, Wash.
Flinn, T. E. ....Remer
‡ Floersch, A. J. ......Seattle, Wash.
Flom, M. G. ....Zumbrota
Flynn, B. F. ....Hibbing
Flynn, L. L., Jr. ......Saint Paul
Fogarty, C. Wm., Jr. ....Saint Paul
† Fogarty, C. Wm. ....Saint Paul
Fogelberg, E. J. ....Saint Paul
Foker, L. W. ....Minneapolis
Foley, F. E. B. ....Saint Paul
Folken, F. G. ....Albert Lea
Folsom, L. B. ....Minneapolis
Ford, B. C. ....Marshall
Ford, Wm. H. ....Minneapolis
Forsythe, J. R. ....Saint Paul
Fortier, G. M. A. ......Little Falls
Fortier, R. G. ....Marble
Foss, E. L. ....Rochester
Foster, O. W. ....Minneapolis
Foulk, Wm. T. ....Rochester
Fowler, L. H. ....Minneapolis
Fox, J. R. ....Minneapolis
Franchere, F. Wm. ....Lake Crystal
Francis, D. W. ....Morristown
Frane, D. B. ....Minneapolis
Frank, L. M. ....Rochester
Frear, Rosemary R. ....Minneapolis
Fredericks, Geo. M. ....Minneapolis
Frederickson, Alice C. ....Willmar
Frederickson, Guy U. Y. ..Willmar
* Fredlund, M. L. ......Minneapolis
Fredricks, M. G. ....Duluth
Freedman, M. A. ....Rochester
† Freeman, C. D. ..Balsam Lake, Wis.
Freeman, C. D., Jr. ....Saint Paul
Freeman, Craig ....Minneapolis
Freeman, D. W. ......Minneapolis

Freeman, G. I. ....Saint Paul
Freeman, J. G. ....Rochester
† Freeman, J. P. ....Glenville
Freidman, L. L. ....Saint Paul
Freligh, W. P. ....Albert Lea
French, L. A. ....Minneapolis
Fricke, R. E. ....Rochester
Fried, L. A. ....Minneapolis
Friedell, Aaron ....Minneapolis
Friedell, George ....Ivanhoe
Friedman, H. S. ......Minneapolis
Friedman, Jack ....Minneapolis
‡ Friend, C. A. Ft. Leonard Wood, Mo.
Friesleben, Wm. ......Sauk Rapids
Frisch, D. C. ....Minneapolis
Frisch, F. P. ....Willmar
Fritsche, Albert ....New Ulm
Fritsche, C. J. ....New Ulm
Fritsche, Theo. R. ......New Ulm
Fritz, W. L. ....Saint Paul
Froats, C. W. ....Saint Paul
† Frost, E. H. ....Willmar
Frost, J. B. ....Minneapolis
Frost, R. H. ....Oak Terrace
Frykman, H. M. ......Minneapolis
Fugina, Geo. R. ....Mankato
Fuller, Alice H. ....Minneapolis
Fuller, B. F. ....Saint Paul
Fuller, Josiah ....Rochester
Funk, V. K. ....Oak Terrace
Furman, L. Christine ..Minneapolis
Furnell, D. Q. ....Saint Paul

Gaida, J. B. ....St. Cloud
† Gaines, E. C. ....Buffalo Lake
† Gallagher, B. J. ....Waseca
‡ Gallagher, W. B. ...Vienna, Austria
† Galligan, Margaret M. ..Minneapolis
Galloway, J. B. ....Minneapolis
† Gambill, C. M. ....Rochester
Gambill, E. E. ....Rochester
Gammell, J. H. ....Minneapolis
Garbrecht, A. Wm. ......Saint Paul
Gardiner, D. G. ....Saint Paul
Gardner, V. H. ....Fairmont
Gardner, W. P. ....Saint Paul
Garlock, A. V. ....Bemidji
Garlock, D. H. ....Bemidji
Garrow, D. M. ....Saint Paul
Garske, G. L. ....Minneapolis
Garten, J. L. ....Minneapolis
Gastineau, C. F. ....Rochester
Gaviser, David ....Minneapolis
Gehlen, J. N. ....Saint Paul
Geiser, P. M. ....Alexandria
Geraci, J. E. ....Rochester
Gericke, J. T., Jr. ....Glenwood
Geurs, B. R. ....Mankato
Ghent, C. H. ....Saint Paul
Ghormley, K. O. ....Rochester
Ghormley, R. K. ....Rochester
Ghostley, Mary C. ....Puposky
Gibb, R. P. ....Rochester
Gibbons, F. C. ....Comfrey
Gibbs, E. C. ....Saint Paul
Gibbs, R. W. ....Minneapolis
Giberson, R. G. ....Rochester
Gibson, M. M. ....Rochester
‡ Giebenhain, J. N. .....Evanston, Ill.
Giebink, R. R. ....Fargo, No. Dak.
Giere, J. C. ....Minneapolis
Giere, R. W. ....Minneapolis
Giere, S. W. ....Benson
Giesen, A. F. ....Starbuck
† Giessler, P. W. ....Minneapolis
† Giffin, H. Z. ....Rochester
Gifford, R. W., Jr. ......Rochester
Gilbert, L. W. ....Rochester
Gilbert, M. G. ....Minneapolis
Gilkey, S. E. ....Saint Paul
Gillespie, D. R. ....Saint Paul
Gillespie, M. G. ....Duluth
Gilman, L. C. ....Willmar
† Gilmore, Rowland ....Crookston
Gingold, B. A. ....Minneapolis
Ginsberg, R. L. ....Rochester
Girvin, R. B. ....Minneapolis
Gjerde, Wm. P. ....Lake City
Glabe, R. A. ....Plainview
Glaeser, J. H. ....Gibbon
Gleason, W. A. ....Saint Paul
Goblirsch, A. P. ....Sleepy Eye
Goehrs, G. H. ....St. Cloud
Goehrs, H. Wm. ....St. Cloud
Goldberg, I. M. ....Minneapolis
Goldish, D. R. ....Duluth
Goldman, T. I. ....Minneapolis
Goldner, M. Z. ....Minneapolis
Goldsmith, J. W. ....Saint Paul
Goldstein, N. P. ....Rochester
† Goltz, E. V. ....Saint Paul
Goltz, N. F. ....Saint Paul

Goltz, R. Wm. ....Saint Paul
Good, C. A., Jr. ....Rochester
Good, H. D. ....Minneapolis
Goodlad, J. H. ....Rochester
Gordon, P. E. ....Minneapolis
Gordon, S. S. ....Minneapolis
Goss, H. C. ....Glencoe
Goss, Martha D. ....Glencoe
Gowan, L. R. ....Duluth
Graham, A. W. ....Chisholm
Graham, G. G. ....Rochester
Grahek, J. P. ....Ely
Grais, M. L. ....Minneapolis
Grant, H. W. ....Saint Paul
Grant, J. C. ....Sauk Centre
Gratzek, F. R. E. ......Minneapolis
Gratzek, Thos. ....Saint Paul
Grau, R. K. ....Saint Paul
Grave, Floyd ....Minneapolis
Graves, R. B. ....Red Wing
Graves, W. N. ....Duluth
† Gray, F. D. ....Marshall
Gray, H. K. ....Rochester
Gray, R. C. ....Minneapolis
Green, R. A. ....Minneapolis
Greenberg, A. J. ......Minneapolis
Greene, D. E. ....Thief River Falls
Greene, L. F. ....Rochester
Greenfield, Irving ......Minneapolis
Greenfield, Wm. T. ....Delano
† Greishiemer, E. M..Philadelphia, Pa.
Grindley, J. W. ....Glencoe
‡ Griebie, G. L. ....Ft. Lewis, Wash.
‡ Griffin, G. D., Jr. Boswell, New Mex.
Griffin, R. P. ....Benson
Griffith, E. R. ....Rochester
Grimes, B. P. ....St. Peter
Grimes, Marian ....Minneapolis
Grindlay, J. H. ....Rochester
Grinley, A. V. ......Grand Rapids
Grise, Wm. B. ....Austin
Grogan, J. M. ....Denver, Colo.
† Grogan, J. S. ....Wadena
Gronvall, P. R. ....Minneapolis
Groschupf, Theo. P. ....Bemidji
Grose, F. N. ....Clarissa
Gross, J. B. ....Rochester
Grotting, J. K. ....Minneapolis
† Gruenhagen, A. P. ......Saint Paul
Grundset, O. J. ....Montrose
Gruys, R. I. ....Windom
Guilbert, G. D. ......Legion, Texas
Guilfoile, P. J. ....Delano
† Gullixson, Andrew ..Longmont, Colo
Gully, R. J. ....Cambridge
Gunlaugson, F. G. ....Minneapolis
Gushurst, E. G. ......Minneapolis
Gustafson, M. B. ....Rochester
Gustason, H. T. ....Minneapolis
Guy, Jack A. ....New London

Haavik, J. E. ....Duluth
Habein, H. C. ....Rochester
Haberer, Helen R. .....Minneapolis
Haberman, Emil ....Osakis
Haddy, F. J. ....Rochester
Haes, Julius E. ....Mankato
Hagedorn, A. B. ....Rochester
Hagen, O. J. ....Moorhead
Hagen, P. S. ....Saint Paul
Hagen, W. S. ....Minneapolis
† Haggard, G. D. ....Minneapolis
† Haines, J. H. ....Stillwater
Haines, S. F. ....Rochester
‡ Halbert, J. J. ....Duluth
Halenbeck, P. L. ....St. Cloud
Hall, A. M. ....Minneapolis
Hall, Bernard ....Saint Paul
Hall, B. E. ....Rochester
Hall, H. B. ....Minneapolis
Hall, W. H. ....Minneapolis
Hall, Wm. E. ....Maple Lake
Hallberg, C. A. ....Minneapolis
Hallberg, O. E. ....Rochester
† Hallenbeck, D. F. ......Rochester
Hallenbeck, G. A. ....Rochester
Halliday, P. V. ....Duluth
Hallin, R. P. ....Worthington
Halloran, W. H. ....Jackson
Halme, W. B. ....Cloquet
Halpern, D. J. ....Brewster
Halpin, J. E. ....Rush City
Halvorson, J. W. ....Goodhue
Hammar, L. M. ....Mankato
Hammes, E. M. ....Saint Paul
Hammes, E. M., Jr. ....Saint Paul
Hammond, J. F. ....Saint Paul
† Haney, C. L. ....Duluth
Hankerson, R. G. ..Minnesota Lake
Hanlon, D. G. ....Rochester
Hannah, H. B. ....Minneapolis
Hanover, R. D. ....Littlefork
Hansen, C. O. ....Minneapolis

Hansen, E. W. ....Minneapolis
Hansen, O. S. ....Minneapolis
Hansen, R. M. ....Minneapolis
Hansen, Theo. M. ......Albert Lea
† Hanson, A. M. ....Faribault
Hanson, E. O. ....Carlton
Hanson, E. C. ....New York Mills
Hanson, H. J. ....Minneapolis
Hanson, H. B. ....Saint Paul
Hanson, H. V. ....Minneapolis
Hanson, H. H. ....Rochester
Hanson, J. W. ....Northfield
Hanson, Lewis ....Frost
Hanson, M. B. ....Minneapolis
Hanson, N. O. ....Rochester
‡ Hanson, S. M. ......Sparta, Wisc.
Hanson, Wm. A. H. ....Minneapolis
Happe, L. J. ....Minneapolis
Harmon, G. E. ....Saint Paul
Harnagel, E. E. ....Rochester
Harrington, S. W. ......Rochester
Harris, C. N. ....Hibbing
Harris, Evelyn S. ....Fergus Falls
Harris, L. E. ....Rochester
Harris, L. D. ....Minneapolis
Harrison, P. W. ......Worthington
* Hart, V. L. ....Minneapolis
Hart, Wm. E, ...Monticello
Hartfiel, H. A. ....Montevideo
Hartfiel, Wm. F. ....Saint Paul
Hartig, H. A. ....Minneapolis
Hartig, Marjorie ....Saint Paul
Hartjen, J. K. ....Bemidji
Hartley, E. C. ....St. Paul
Hartnagel, G. F. ....Red Wing
Hartung, E. H. ....Claremont
Hartwich, R. F. ....Winona
† Hartzell, T. B. ....Minneapolis
† Haskell, A. D. ....Alexandria
Hass, F. M. ....Minneapolis
Hassett, M. F. ....Saint Paul
Hassett, R. G. ....Mankato
Hastings, D. R. ....Minneapolis
Hastings, D. W. ......Minneapolis
Hatch, W. E. ....Duluth
Hattox, J. S. ....Rochester
Hauch, E. W. ....Rochester
Hauge, E. T. ....Minneapolis
Hauge, M. I. ....Clarkfield
Haugen, G. W. ....Minneapolis
Haugen, J. A. ....Minneapolis
Hauser, G. W. ....Minneapolis
Hauser, V. P. ....Saint Paul
Havel, R. J. ....Minneapolis
Haven, W. K. ....Minneapolis
Havens, F. Z. ....Rochester
Havens, J. G. W. ....Austin
Hawkinson, R. P. ......Minneapolis
Hawley, II, G. M. B. ....Red Wing
Hayes, A. F. ....Saint Paul
Hayes, D. W. ....New Orleans, La.
Hayes, J. M. ....Minneapolis
Hayes, M. F. ....Nashwauk
Haynes, A. L. ....Rochester
Hays, A. T. ....Minneapolis
Hays, J. C. ....Saint Paul
Head, D. P. ....Minneapolis
Healy, M. M. ....Rochester
Healy, R. T. ....Pierz
Hebbel, Robt. ....Minneapolis
Hebeisen, M. B. ....Chaska
Heck, F. J. ....Rochester
Heck, W. W. ....Saint Paul
† Hedback, A. E. ....Minneapolis
Hedberg, G. A. ....Nopeming
Hedemark, H. H. ....Ortonville
Hedemark, T. A. ....Ortonville
Hedenstrom, F. G. ......Saint Paul
Hedenstrom, L. H. ......Cambridge
Hedenstrom, P. C. ....Marshall
Hedin, R. F. ....Red Wing
† Hegge, O. H. ....Austin
Hegge, R. S. ....Austin
Heiam, Wm. C. ....Cook
Heiberg, E. A. ....Fergus Falls
Heiberg, O. M. ....Worthington
† Heilman, D. M. H. ......Rochester
Heilman, F. R. ....Rochester
Heim, R. R. ....Minneapolis
Heimark, J. J. ....Fairmont
Heinz, Ivy B. ....Shakopee
Heinz, L. H. ....Shakopee
Heise, Carl v. R. ....Winona
Heise, Paul ....Winona
Heise, Philip R. ....Winona
† Heise, Wm. F. C. ....Winona
Heise, Wm. v. R. ....Winona
Heisler, J. J. ....Minneapolis
Helferty, J. K. ....Boise, Idaho
† Helland, G. M. ......Spring Grove
† Helland, J. W. ......Spring Grove
Heller, Ben I. ....Minneapolis
† Helmholz, H. F. ....Rochester
Helseth, H. K. .....Pelican Rapids
† Hempstead, B. E. ....Rochester

† Hemstead, Werner .....Minneapolis
Hench, P. S. ....Rochester
Henderson, A. J. G. .No. Saint Paul
Henderson, E. D. ....Rochester
Henderson, J. W. ....Rochester
Henderson, M. S. ....Rochester
Hendricks, E. J. ....Saint Paul
† Hendrickson, J. F. ....Minneapolis
† Hendrickson, R. R. ......Crookston
Hengstler, Wm. H. ....Saint Paul
Henney, Wm. H. ....McIntosh
Henrikson, E. C. ......Minneapolis
Henry, C. J. ....Milaca
† Henry, C. E. ......Kirksville, Mo.
Henry, J. E. ....Milaca
Henry, M. O. ....Minneapolis
Hensel, C. N. ....Saint Paul
*†Henslin, A. E. ....Cresco, Iowa
Herbert, C. M., Jr. ......Rochester
Herbert, W. L. ....Minneapolis
Herbst, R. F. ....Willmar
Herman, S. M. ....Saint Paul
Hermann, H. W. ......Minneapolis
Hermanson, P. E. ......Hendricks
Heron, R. C. ....Saint Paul
Herrell, W. E. ....Rochester
Herrmann, E. T. ....Saint Paul
Hertel, G. E. ....Austin
Hertz, M. J. ....Saint Paul
Hesdorffer, M. B. ......Minneapolis
Hetrick, M. A. ....Rochester
† Hewitt, R. M. ....Rochester
† Heyerdale, O. C. ....Rochester
† Higgins, J. H. ....Minneapolis
Higgs, W. W. ....Park Rapids
Hightower, N. C., Jr. ..Minneapolis
Hilding, A. C. ....Duluth
Hilger, A. Wm. ....Saint Paul
*†Hilger, D. D. ....Saint Paul
Hilger, J. A. ....Saint Paul
Hilger, L. D. ....Saint Paul
Hilker, M. D. ....Saint Paul
Hill, Earl ....Minneapolis
Hill, Elmer M. ....Minneapolis
Hill, F. E. ....Duluth
Hill, J. R. ....Rochester
Hill, W. C. ......Ann Arbor, Mich.
† Hillis, S. J. ..East Bradenton, Fla.
Hills, Oscar W. ....Rochester
Hilsabeck, J. R. ....Rochester
Hinckley, R. G. ....Minneapolis
Hinderaker, H. P. .....Bird Island
Hines, C. R., Jr. ....Rochester
Hines, E. A., Jr. ....Rochester
Hiniker, L. P. ....Saint Paul
Hiniker, P. J. ....Le Sueur
Hinz, W. E. ....Willmar
Hirschboeck, F. J. ....Duluth
Hirschfield, F. R. ......Minneapolis
† Hitchcock, C. R. ......Minneapolis
Hitchings, Wm. S. ....Lakefield
† Hoaglund, A. Wm.
Los Angeles, Calif.
Hochfilzer, J. J. ....Saint Paul
Hodapp, R. J. ....Willmar
Hodapp, R. V. ....Willmar
Hodgson, C. H. ....Rochester
Hodgson, Jane E. ....Saint Paul
Hodgson, J. R. ....Rochester
Hoehn, David ....Holdingford
Hoeper, P. G. ....Mankato
Hoff, H. O. ....Duluth
Hoffbauer, F. W. ......Minneapolis
Hoffert, H. E. ....Minneapolis
Hoffman, M. S. ....Rochester
Hoffman, R. A. ....Minneapolis
Hoffman, W. L. ....Minneapolis
Hofmann, G. N. ....Cannon Falls
‡ Hoganson, D. E. .Camp Rucker, Ala.
Hoidale, A. D. ....Tracy
Holcomb, J. T. .Marine-on-St. Croix
Holcomb, O. W. ....Saint Paul
Holland, C. R. ....Rochester
† Hollands, W. H. ....Fisher
Hollenhorst, R. W. ....Rochester
Hollinshead, W. H. ....Saint Paul
Holm, H. H. ....Glencoe
† Holm, P. F. ....Sarasota, Fla.
Holman, C. B. ....Rochester
Holmberg, C. J. ......Minneapolis
Holmberg, Leroy J. ....Canby
Holman, R. W. ....Saint Paul
Holmes, A. E. ....Rush City
Holmstrom, C. H. ....Warren
Holt, A. H. ....Rochester
Holt, J. E. ....Saint Paul
Holzapfel, F. C. ......Minneapolis
Hood, R. T. ....Rochester
Hom, L. Y. W. ......Battle Lake
† Hopkins, G. W. ....Saint Paul
Horns, H. L. ....Minneapolis
Horns, R. C. ....Minneapolis
Horton, B. T. ....Rochester
Hottinger, R. C. ....Janesville
† Houkom, Bjarne
Luskoto T.T., East Africa
Houkom, S. S. ....Duluth
Houle, R. J. ....New Brighton
† House, Z. E. ......Burbank, Calif.
Houston, D. M. ....Park Rapids
Hovde, Rolf ....Winthrop
Hovland, M. L. ....Minneapolis
Howard, E. G. ....Mapleton
Howard, M. I. ....Mankato
Howard, M. A. ....Saint Paul
Howard, S. E. ....Minneapolis
Howard, W. S. ....Saint Paul
Howe, N. W. ....Saint Paul
Howell, L. P. ....Rochester
Hoyer, L. J. ....Windom
Hubbard, O. E. ....Brainerd
Hubin, E. G. ....Sandstone
Hubler, W. L. ....Rochester
Hudec, E. R. ....Echo
Hudson, G. E. ....Minneapolis
Hudspeth, Wm. T. ....Madison
Huenekens, E. J. ......Minneapolis
† Huffington, H. L. ....Mankato
Hugenberg, Wm. C. ......Rochester
Huizenga, K. A. ....Rochester
Hullsiek, H. E. ....Saint Paul
Hullsiek, R. B. ....Minneapolis
Hultgen, Wm. J. ....Saint Paul
† Hultkrans, J. C. ......Minneapolis
Hultkrans, R. E. ....Minneapolis
Humphrey, E. W. ....Moorhead
Humphrey, W. R. ....Stillwater
Hunt, A. B. ....Rochester
Hunt, R. S. ....Fairmont
Hunt, R. C. ....Fairmont
Hunt, William ....Rochester
† Hunte, A. F. ....Alhambra, Calif.
Hunter, J. S. ....Rochester
Hunter, R. C. ....Rochester
† Hurd, Annah ....Minneapolis
Hursh, P. W. ....Slayton
Hurwitz, M. M. ....Saint Paul
‡ Hutchinson, C. J. .So. Boston, Mass.
Hutchinson, D. W. ....Oak Terrace
Hutchinson, Henry ....Moose Lake
† Huxley, F. R. ....Faribault
Hymes, Chas. ....Minneapolis
† Hynes, J. E. ....Minneapolis

† Ide, Arthur W. ....Saint Paul
Idstrom, L. G. ....Minneapolis
Ikeda, Kano ....Saint Paul
Ingalls, E. G., Jr. ....Minneapolis
Ingebrigtson, E. K. G.
Big Springs, Texas
Ingerson, C. A. ....Saint Paul
Irvine, H. G. ....Minneapolis
Iverson, R. M. ....Minneapolis
Ivins, John C. ....Rochester
Ivy, John H. ....Rochester

Jackman, R. J. ....Rochester
Jacobs, D. L. ....Willmar
Jacobs, G. C. ....Fergus Falls
† Jacobs, J. C. ....Willmar
Jacobson, Clarence ....Chisholm
Jacobson, C. W. ......Breckenridge
Jacobson, F. C. ....Duluth
Jacobson, W. E. ....Minneapolis
James, E. M. ....Saint Paul
Jampolis, R. W. ....Rochester
Janecky, A. G. ....Baudette
Janes, J. M. ....Rochester
Janssen, M. E. ....Crookston
Jensen, A. M. ....Brownton
Jensen, A. R. ....Crookston
Jensen, H. C. ....Minneapolis
† Jensen, M. J. ....Minneapolis
Jensen, N. K. ....Minneapolis
Jensen, R. A. ....Minneapolis
Jensen, T. J. ....Duluth
Jensen, J. E. ....Stillwater
Jerome, Bourne ....Minneapolis
Jeronimus, H. J. ....Duluth
Jesion, J. W. ....Saint Paul
Jessico, C. M. ....Duluth
Joffe, H. H. ....Duluth
Johanson, W. G. ....Saint Paul
Johnson, A. McF. ....Rochester
Johnson, Aldridge F.
Indianapolis, Ind.
Johnson, Andrew B. ......Rochester
† Johnson, Arnold E. ....Minneapolis
Johnson, Arthur B. ....Minneapolis
Johnson, August E. ....Minneapolis
* Johnson, A. M. ....Saint Paul
† Johnson, C. E. ....Saint Paul
Johnson, Carl E. ....Saint Paul
Johnson, Carl Eric ....Rochester
Johnson, C. M. ....Clarkfield
Johnson, C. Percy ....Tyler
Johnson, D. A. ....Rochester
Johnson, D. L. ....Little Falls
Johnson, E. W. ....Bemidji
Johnson, Emil W. ......Minneapolis
† Johnson, Hans ....Kerkhoven
Johnson, H. C. ..Thief River Falls
Johnson, Harry A. ......Minneapolis
Johnson, Herbert W. .....Rochester
Johnson, Hobart C. ..North Mankato
Johnson, Hugh A. ....Rochester
Johnson, J. A. ....Minneapolis
Johnson, J. W. ....Minneapolis
Johnson, Julius ....Minneapolis
Johnson, K. E. ....Duluth
Johnson, K. J. ....Bemidji
Johnson, M. R. ....Minneapolis
Johnson, Merton A. ....Storden
*†Johnson, Nimrod A. ....
Santa Monica, Calif.
Johnson, Norman P. ...Minneapolis
Johnson, Norton T. .....Minneapolis
Johnson, Olga H. ....Moorhead
Johnson, Orville H. ..Redwood Falls
Johnson, Ralph B. ....Lanesboro
Johnson, Ray G. ....Stillwater
Johnson, Reinald G. ...Minneapolis
Johnson, Reuben A. ...Minneapolis
Johnson, Robert E. ....Minneapolis
Johnson, Rudolph E..Ah-Gwah-Ching
Johnson, V. M. ....Dawson
Johnson, Wm. E. ....Morgan
Johnson, Wm. E. ....Rochester
Johnson, Y. T. ....Minneapolis
Johnsrud, L. W. ....Chisholm
Johnston, L. F. ....Winona
† Johnston, R. O. ....Hibbing
Jolin, F. M. ....Bovey
† Jones, Alvah W. ....Red Wing
Jones, E. Mendelssohn....Saint Paul
‡ Jones, G. W...Ft. Leavenworth, Kan.
Jones, H. W., Jr. ......Minneapolis
Jones, O. H. ....Mankato
Jones, Richard F. ....Rochester
Jones, R. H. ....Minneapolis
Jones, R. N. ....Saint Cloud
Jones, Wm. R. ....Minneapolis
† Jordan, Kathleen B. S. ....
Granite Falls
Jordan, L. S. ....Granite Falls
Jordan, R. A. ....Rochester
Josewich, Alex. ....Minneapolis
Josewski, R. J. ....Stillwater
Josselson, A. J. ....Rochester
Joyce, G. L. ....Rochester
Judd, E. S., Jr. ....Rochester
Judd, Walter H...Washington, D. C.
Judge, D. J. ....Rochester
Juergens, H. M. ......Belle Plaine
Juergens, M. F. ....Stillwater
Juers, E. H. ....Red Wing
Juliar, R. O. ....Saint Clair
Juntunen, R. R. ....Nashwauk
Jurdy, M. J. ....Minneapolis
Just, H. J. ....Hastings

Kaasa, L. J. ....Saint Peter
Kabrick, O. A. ....Saint Peter
Kalin, O. T. ....Minneapolis
Kallestad, L. L. ....Brownton
Kamman, G. R. ....Saint Paul
† Kamp, Byron A. ....Albert Lea
Kanne, E. R. ....Brainerd
Kaplan, D. H. ....Saint Paul
Kaplan, J. J. ....Minneapolis
Kapsner, A. T. ....Princeton
Karlen, Markle ....Rochester
Karleen, B. N. ....Jackson
Karleen, C. I. ....Minneapolis
Karlstrom, A. E. ....Minneapolis
Karn, J. F. ....Ortonville
Karon, I. M. ....Saint Paul
Kasper, E. M. ....Saint Paul
Kath, R. H. ....Woodlake
Katz, Louis J..Hot Springs, So. Dak.
Kaufman, E. J. ....Appleton
Kaufman, H. J. ....Minneapolis
Kaufman, W. B. ....Mankato
Kaufman, Wm. C. ....Appleton
Kearney, R. W. ....Mankato
Keating, F. R., Jr. ...St. Louis, Mo.
Keating, J. U. ....Rochester
Keefe, R. E. ....Saint Paul
Keil, M. A. ....Mankato
Keith, H. M. ....Rochester
† Keith, N. M. ....Rochester
Keithahn, E. E. ....Sleepy Eye
Kelby, G. M. ....Minneapolis
Kelley, E. P. ....Rochester
Kelley, K. J. ....Litchfield
Kelly, A. C. ....Duluth
Kelly, A. H. ....Rochester
Kelly, J. F. ....Cold Springs

Kelly, J. P. ....Minneapolis
Kelly, J. V. ....Saint Paul
Kelsey, C. G. ....Hinckley
Kelsey, C. M. ....Saint Paul
Kelsey, J. R. ....Rochester
Kemp, A. F. ....Mankato
Kenefick, E. V. ....Saint Paul
Kennedy, C. C. ....Minneapolis
Kennedy, G. L. ....Faribault
† Kennedy, J. F. ....Minneapolis
Kennedy, R. L. J. ....Rochester
Kennedy, T. V. A. ....Rochester
Kennedy, Wm. A. ....Saint Paul
Kenney, F. D. ....Rochester
Kenyon, T. J. ....Saint Paul
Kerkhof, A. C. ....Minneapolis
Kernohan, J. W. ....Rochester
Kertesz, G. J. V........Minneapolis
Kesting, Herman ....Saint Paul
Kevern, J. L. ....Henning
Keyes, J. D. ....Winona
‡ Keyes, R. W. ....Ely
Kiely, J. M. ....Rochester
Kierland, R. R. ....Rochester
Kiesler, Frank, Jr. .....Minneapolis
Kilbride, E. A. ....Worthington
* Kilbride, J. S. ....Worthington
Kimbrough, R. F. ....Rochester
Kimmel, G. C., Jr. ....Red Wing
† King, E. A. ....Minneapolis
King, F. W. ....Oak Terrace
† King, George L. ....Saint Paul
Kinkade, B. R. ....Ada
Kinports, E. B...International Falls
Kinsella, T. J. ....Minneapolis
Kirby, Thomas J., Jr. .....Rochester
† Kirk, G. P. ......East Grand Forks
Kirklin, B. R. ....Rochester
Kirklin, J. W. ....Rochester
Kistler, A. J. ....Minneapolis
Kleckner, M. S. ....Rochester
Klefstad, L. H. ....Greenbush
Klein, Harry ....Duluth
Klein, Henry N. ....Saint Paul
Klein, Wm. A. ....Duluth
Klima, Wm. W. ....Stewart
‡ Kline, R. F. ......Fort Smith, Ark.
Knapp, F. N. ....Duluth
Knapp, M. E. ....Minneapolis
Knight, C. D. ....Rochester
Knight, E. G. ....Swanville
Knight, R. T. ....Minneapolis
Knight, Ray R. ....Minneapolis
Knoche, H. A. ....Morgan
Knoll, W. V. ....Duluth
Knudsen, Helen L......Minneapolis
Knutson, G. A. ....Hallock
Knutson, G. E. ....Saint Paul
Knutson, L. A. ......Spring Grove
Knutson, R. C. ....Rochester
Knutsson, Katherine H. ..Rochester
Koelsche, G. A. ....Rochester
Koenigsberger, Chas. ......Mankato
Koepcke, G. M. ....Minneapolis
Kohlbry, Carl O. ....Duluth
Kolars, James J. ....Faribault
Koller, Hermann M. ...Minneapolis
Koller, Louis R. ......Minneapolis
Kooda, Jennings C. ....Morris
Koop, Severin H. ....Richmond
Korchik, John P. ....Minneapolis
Korda, Henry A. ....Pelican Rapids
Kortsch, Ferdinand P. ...Prior Lake
Koskela, Albert L. ......Deer River
Koskela, Lauri Edwin ..Deer River
Kostick, W. R. ....Fertile
Kotchevar, F. R. ....Eveleth
Kottke, F. J. ....Minneapolis
Kotval, R. J. ....Pipestone
Koucky, R. W. ....Minneapolis
Koza, D. W. ....Rochester
Krakowka, G. F. ....Rochester
Krause, C. W. ....Fairmont
Kremen, A. J. ....Minneapolis
Kreuzer, T. C. ....Marshall
Krieser, A. E. ....Anoka
Kroboth, Jr., F. J. ......Rochester
Krout, R. M. ....Rochester
Krueger, V. R. ....Nopeming
Krusen, F. H. ....Rochester
Kruzick, S. J. ....Sleepy Eye
Krystosek, L. A. ....Clara City
Kucera, F. J. ....Hopkins
Kucera, L. B. ....Lonsdale
Kucera, S. T. ....Northfield
Kucera, Wm. J. ....Minneapolis
Kugler, A. A. ....Saint Paul
Kuhlmann, L. B. ....Melrose
Kunkel, W. M., Jr. ......Rochester
Kurtin, H. J. .....Blooming Prairie
Kurtin, J. J. ......Blooming Prairie
Kuske, A. W. ....Saint Paul
Kusske, A. L. ....New Ulm
Kusske, B. W. ....Saint Louis Park
Kvale, W. F. ....Rochester
Kvitrud, Gilbert ....Saint Paul

LaBree, J. W. ....Minneapolis
LaBree, R. H. ....Duluth
Lagaard, S. M. ....Minneapolis
Laikola, L. A. ....Adrian
Laird, A. T. ....Duluth
Lajoie, J. M. ....Minneapolis
Lake, C. F. ....Rochester
Lamp, C. B., Jr. ....Rochester
‡ Lane, R. E. ....Annapolis, Md.
Lang, L. A. ....Minneapolis
Langhoff, A. H. ....Mankato
Lannin, B. G. ....Saint Paul
Lannin, D. R. ....Saint Paul
Lapierre, A. P. ....Minneapolis
Lapierre, J. T. ....Minneapolis
Larsen, C. L. ....Saint Paul
Larsen, F. Wm. ....Minneapolis
Larson, Arnold ......Detroit Lakes
Larson, C. M. ....Minneapolis
Larson, Eva-Jane ....Saint Paul
Larson, G. E. ....Cambridge
Larson, J. T. .....South Saint Paul
Larson, K. R. ....Saint Paul
Larson, L. M. ....Minneapolis
Larson, Leonard M. ...Oak Terrace
Larson, L. J. ....Bagley
Larson, M. L. ....Saint Paul
Larson, M. H. ....Nicollet
Larson, O. E. H. ....Zumbrota
Larson, P. N. ....Minneapolis
Larson, R. H. ....Anoka
Latterell, K. E. ....Duluth
Laughlin, J. T. ....Grey Eagle
LaVake, R. T. ....Minneapolis
Law, S. G. ....Minneapolis
Lax, M. H. ....Saint Paul
Lay, C. L. ....Rochester
Laymon, C. W. ....Minneapolis
† Lazar, H. L. ....Excelsior
Lazarte, J. A. ....Rochester
Leahy, Bartholomew .....Saint Paul
Leavenworth, R. O. .....Saint Paul
† Leavitt, H. H. ....Phoenix, Ariz.
Lebowske, J. A. ....Minneapolis
Leck, P. C. ....Austin
Lecklitner, M. D. ......Minneapolis
Leddy, E. T. ....Rochester
Lee, H. W. ....Brainerd
Lee, M. J., Jr. ....Tyler, Texas
Lee, N. J. ....Saint Paul
† Lee, W. N. ......Claremont, Calif.
Leemhuis, A. J. ....Minneapolis
Leggett, E. A. ......Ah-Gwah-Ching
Leibold, H. H. .....Parkers Prairie
Leick, R. M. ....Saint Paul
Leitch, Archibald ....Saint Paul
Leitschuh, L. F. ....Winsted
Leland, H. R. ....Minneapolis
† Lemon, W. S. ....Rochester
Lenander, M. E. L. .....Saint Peter
Lenarz, A. J. ....Browerville
Lende, Norman ....Faribault
Lengby, F. A. ....Minneapolis
* Lenont, C. B. ....Virginia
Lenz, J. R. ....Morton
Lenz, O. A. ....Minneapolis
Leonard, L. J. ....Minneapolis
Leonard, Saml. ....Minneapolis
† Leopard, B. A. ...Brownsville, Tex.
Lepak, F. J. ....Duluth
Lepak, J. A. ....Saint Paul
† Lerche, William ....Cable, Wis.
Lerner, A. R. ....Minneapolis
Lester, M. J., Jr............Truman
Leven, N. L. ....Saint Paul
Leverenz, C. W. ....Saint Paul
Levin, B. G. ....Saint Paul
Levitt, G. X. ....Saint Paul
Lewis, A. J. ....Henning
Lewis, C. W. ....Henning
† Lewis, C. B. ....Saint Cloud
Lewis, F. J. ....Minneapolis
‡ Lewis, J. S., Jr...Bremerton, Wash.
Lexa, F. J. ....Lonsdale
Libert, J. N. ....Saint Cloud
Lick, C. L. ....Saint Paul
Lick, L. C. ....Rochester
† Liedloff, A. G. ....Mankato
Lien, R. J. ....Saint Paul
Liffrig, W. W. ....Red Wing
Lightbourn, E. L. ......Saint Paul
Lilleberg, N. J. ....Saint Paul
Lillehei, E. J. ....Robbinsdale
Lillie, H. I. ....Rochester
Lillie, J. C. ....Rochester
Lima, L. R. ....Montevideo
‡ Lind, C. J., Jr................
Ft. Sam Houston, Texas
Lind, C. J. ....Minneapolis
Lindberg, A. L. ....Wheaton
Lindberg, A. C. ....Minneapolis
Lindberg, V. L. ....Minneapolis
† Lindberg, W. R. ....Minneapolis
Lindblom, A. E. ......No. Mankato
† Linde, Herman ....Cyrus
Lindeman, R. J. ....Paynesville
Lindgren, R. C. ....Minneapolis
Lindquist, R. H. ......Minneapolis
Linner, Gunnar ....Minneapolis
Linner, H. P. ....Minneapolis
† Linner, J. H. ....Minneapolis
Linner, P. W. ....Minneapolis
Lippman, E. S. ....Minneapolis
Lippman, H. S. ....Saint Paul
Lippmann, E. W. ....Hutchinson
Lipschultz, Oscar ......Minneapolis
Lipscomb, P. R. ....Rochester
Litchfield, J. T. ....Minneapolis
Litin, E. M. ....Rochester
Litman, A. B. ....Minneapolis
Litman, S. N. ....Duluth
Livermore, G. R. ....Rochester
Lofgren, K. A. ....Rochester
Lofsness, S. V. ....Minneapolis
† Logan, A. H. ....Rochester
Logan, G. B. ....Rochester
Logefeil, R. C. ....Minneapolis
Lohmann, J. G. ....Pipestone
Loken, S. M. ....Saint Paul
Loken, Theodore ....Ada
Lommen, P. A. ....Austin
Longfellow, H. W. ....Brainerd
Longley, J. R. ....Rochester
Longo, V. J. ....Rochester
Loomis, E. A. ....Minneapolis
Loomis, G. L. ....Winona
Lorton, W. L. ....Anoka
Lott, F. H. ....Minneapolis
Love, F. A. ....Carlos
Love, J. G. ....Rochester
Lovett, B. R. ....Oak Terrace
Lovshin, W. C. ....Eveleth
Lowe, E. R. ....So. Saint Paul
Lowe, T. A. .....South Saint Paul
Lowry, Elizabeth C. ....Minneapolis
Lowry, Thomas ....Minneapolis
Lucas, J. E. ....Saint Paul
Luck, Hilda ....Mankato
Luckemeyer, C. J.......Saint Cloud
Lueck, W. W. ....Minneapolis
Lufkin, N. H. ....Minneapolis
Lund, C. J. T. ....Fergus Falls
Lund, W. J. ....Staples
Lundberg, Ruth I. .....Minneapolis
Lundblad, R. M. ....Clara City
Lundblad, R. A. ......Minneapolis
Lundblad, S. W. ....Minneapolis
Lundell, C. L. ....Granite Falls
Lundgren, A. C. ....Minneapolis
Lundholm, A. M. ....Saint Paul
Lundquist, C. W. ....Owatonna
Lundquist, E. F. ......Minneapolis
Lundquist, V. J. P. ....Minneapolis
Lundy, J. S. ....Rochester
Luth, D. V. ....Duluth
Lynch, F. W. ....Saint Paul
† Lynch, M. J. ....Minneapolis
Lynde, O. G. ......Los Gatos, Calif.
Lysne, Henry ....Minneapolis
Lysne, Myron ....Minneapolis

MacCarty, C. S. ....Rochester
† MacCarty, W. C. ....Rochester
† MacDonald, A. E. ....Minneapolis
MacDonald, D. A. ......Minneapolis
MacDonald, R. A. ....Littlefork
MacFarlane, E. B. ....Rochester
MacFarlane, P. H. ....Chisholm
Mach, F. B. ....Minneapolis
Mach, R. F. ....Rush City
MacKenzie, D. A. ....Rochester
MacKinnon, D. C. .....Minneapolis
Macklin, W. E., Jr. ....Willmar
Mackoff, S. M. ....Saint Paul
MacLean, A. R. ....Rochester
† Macnie, J. S. ....Minneapolis
MacRae, G. C. ....Duluth
Madden, J. F. ....Saint Paul
Madison, M. S. ....Rochester
Madland, R. S. ....Saint Paul
Maeder, E. C. ....Minneapolis
Maertz, R. W. ....Faribault
Maertz, W. F. ....Saint Paul
Magath, T. B. ....Rochester
Magney, F. H. ....Duluth
Magnuson, A. E. ....Wheaton
Magnuson, R. C. ....Cambridge
Magraw, R. M. ....Saint Paul
Mahle, D. G. ....Plainview
Mahowald, Aloys ....Albany
Maitland, E. T. ....Jackson
Maland, C. O. ....Minneapolis
Malerich, J. A. ......W. Saint Paul
Malmstrom, J. A. ....Virginia

† Maloney, W. F. ....Oak Terrace
Manger, W. M. ....Rochester
Mankey, J. C. ....Minneapolis
Mankin, H. W. ....Rochester
† Mann, F. C. ....Rochester
Mann, F. D. ....Rochester
Mann, R. H. ....Rochester
† Manson, F. M. ....Worthington
March, K. A. ....Cambridge
† Marcley, W. J. ....Minneapolis
* Mariette, E. S. ....Oak Terrace
Marking, G. H. ....Minneapolis
Markle, G. B., IV........Rochester
Marks, R. W. ....Saint Paul
Marshall, C. M. ....Crosby
Martens, T. G. ....Rochester
Martin, A. C. ....Luverne
Martin, D. A. ....Wabasha
Martin, D. L. ....Saint Paul
‡ Martin, G. R...Camp McCoy, Wis.
Martin, G. M. ....Rochester
Martin, T. P. ....Arlington
Martin, W. C. ....Duluth
Martin, W. J. ....Rochester
Martineau, J. L. ....Saint Paul
Martinson, C. J. ....Wayzata
Martinson, E. J. ....Wayzata
Masson, D. M. ....Rochester
† Masson, J. C. ....Rochester
Masson, J. K. ....Rochester
† Matchan, G. R. ....Saint Paul
Mathieson, D. R. ....Rochester
Mattill, P. M. ....Oak Terrace
Mattison, P. A. ....Winona
Mattson, A. D. ....Saint James
Mattson, H. A. N. .....Minneapolis
Maxeiner, S. R. ....Minneapolis
Maxeiner Jr., S. R. ......Rochester
Mayne, J. G. ....Rochester
Mayne, R. M. ....Nopeming
Mayo, C. W. ....Rochester
Maytum, C. K. ....Rochester
McBean, J. B. ....Rochester
McBurney, R. P. ....Rochester
McCabe, J. S. ....Saint Paul
McCain, D. L. ....Saint Paul
McCaffrey, F. J. ......Minneapolis
McCann, D. F. ....Bemidji
McCann, E. J. ....Minneapolis
McCannel, M. A. ......Minneapolis
McCarten, F. M. ....Stillwater
McCarthy, A. M. ....Willmar
McCarthy, Donald ......Saint Paul
McCarthy, J. J. ....Saint Paul
McCarthy, W. R. ....Saint Paul
McCartney, J. S. ......Minneapolis
† McCarty, P. D...................Ely
McClanahan, J. H..White Bear Lake
McClanahan, T. S..White Bear Lake
McCloud, C. N., Jr......Saint Paul
McConahey, W. M., Jr....Rochester
McCormack, L. J.........Rochester
McCormick, D. P. ......Minneapolis
† McCoy, Mary K............Duluth
‡ McCrimmon, H. P...Cleveland, Ohio
† McDaniel, Oriann.......Minneapolis
McDonald, A. L. ....Duluth
McDonald J. R. ....Rochester
McDonald, O. G. ....Duluth
McDowell, J. P. ....Saint Cloud
McEnaney, C. T. ....Owatonna
McEwan, Alexander......Saint Paul
McFarland, A. H.......Minneapolis
McGandy, R. F. ....Minneapolis
McGeary, G. E. ....Minneapolis
‡ McGeary, M. D. ...Oceanside, Calif.
McGroarty, B. J. ....Saint Paul
McGroarty, J. J. ....Easton
McGuigan, H. T. ....Red Wing
McHaffie, O. L. ....Duluth
McInerny, M. W. ......Minneapolis
McIntire, H. M. ....Waseca
McIntire, S. F. ....Rochester
McIntyre, J. A. ....Owatonna
McIver, B. A. ....Lowry
McKaig, A. M. .....Red Lake Falls
McKaig, C. B. ....Pine Island
McKelvey, J. L. ....Minneapolis
McKenna, Elizabeth M.......Austin
McKenna, J. K. ....Austin
McKenna, M. J. .....Grand Rapids
McKenzie, C. H. ......Minneapolis
McKenzie, Eva E. ......Saint Paul
McKinley, C. A. ....Minneapolis
McKinney, F. S. ....Minneapolis
McLane, W. O. ....Brainerd
† McLaren, J. M. ....Minneapolis
McLaughlin, B. H. .....Minneapolis
McLaughlin, E. M. ....Winona
‡ McLeod, J. J. ....Japan
McLeod, J. L. ....Grand Rapids
McMahon, M. J. ....Green Isle
McManus, W. F. ....Princeton
McMorris, R. O. ....Rochester
McMurtrie, W. B. .....Minneapolis

McNaughton, R. A. ......Rochester
McNeill, J. I. ....Rochester
McNutt, J. R. ....Duluth
McPheeters, H. O. .....Minneapolis
† McQuarrie, Irvine ......Minneapolis
McWhorter, H. E. ....Rochester
Mead, C. H. ....Duluth
Meade, J. R. ....Saint Paul
Mears, B. J. ....Saint Paul
Mears, R. F. ....Northfield
Medelman, J. P. ....Saint Paul
Medlin, C. F. ....Minneapolis
Meinert, A. E. ....Winona
Melancon, J. F. ....Saint Paul
Melby, Benedik....Blooming Prairie
† Mellby, O. F. ....Thief River Falls
Meller, R. L. ....Minneapolis
Melzer, G. R. ....Lyle
Menold, W. F. ....Saint Paul
Mercil, W. F. ....Crookston
Merkert, C. E. ....Minneapolis
Merkert, G. L. ....Minneapolis
Merner, T. B. ....Faribault
† Merrick, C. T. ....Saint Paul
† Merrill, Elisabeth ......Minneapolis
Merrill, R. W. ....Morris
Merriman, L. L. ....Duluth
Merritt, W. A. ....Rochester
Metcalf, N. B. ....Onamia
Meyer, A. J. ....Minneapolis
Meyer, A. A. ....Melrose
Meyer, E. L. ....Minneapolis
Meyer, F. C. ....Kenyon
‡ Meyer, J. O. ....Grand Rapids
Meyer, P. F. ....Faribault
Meyerding, E. A. ....Saint Paul
Michael, J. C. ....Minneapolis
Michel, H. H..........Minneapolis
Michels, R. P. ....Willmar
Michelson, H. E. ....Minneapolis
Michienzi, L. J.........Saint Paul
† Mickelsen, Emma F. ....Minneapolis
Mickelson, J. C. ....Mankato
Midthune, A. S. ....Lake Park
Milhaupt, E. N. ....Saint Cloud
Miller, A. L. ....Minneapolis
Miller, E. W. ....Anoka
Miller, E. M. ....Rochester
Miller, Harold E. .....Minneapolis
Miller, Hugo E. ....Minneapolis
Miller, J. C. ....Minneapolis
Miller, R. D. ....Rochester
Miller, Samuel ....Albert Lea
† Miller, V. I. ....Mankato
Miller, W. A. .....New York Mills
Miller, W. R. ....Red Wing
Miller, W. T. ....W. Saint Paul
Miller, Z. R. ....Saint Paul
Millikan, C. H. ....Rochester
Mills, J. L. ....Winnebago
Mills, S. D. ....Rochester
Milnar, F. J. ....Saint Paul
Milton, J. S. ....Minneapolis
Minge, R. K. ....Worthington
Minsky, A. A. ....Minneapolis
Minty, E. W. ....Duluth
Misbach, W. D. ....Fairmont
Mitby, I. L. ....Minneapolis
Mitchell, B. D. ....Minneapolis
Mitchell, E. C. ....Minneapolis
Mitchell, M. T. ....Minneapolis
Mixer, H. W. ....Minneapolis
Moberg, C. W. ....Detroit Lakes
Moe, A. E. ....Moorhead
Moe, J. H. ....Minneapolis
Moe, R. J. ....Duluth
Moe, Thos. ....Moose Lake
Moehn, J. T. ....Minneapolis
Moehring, H. G. ....Duluth
Moen, J. K., Jr. ....Minneapolis
Moersch, F. P. ....Rochester
Moersch, H. J. ....Rochester
Moersch, R. U. ....Rochester
Moga, J. A. ....Saint Paul
Molander, H. A. ....Saint Paul
Mollers, T. P. ....Soudan
† Monahan, Elizabeth......Minneapolis
Monroe, P. B. ....Cloquet
Monserud, N. O. ....Cloquet
Monson, E. M. ....Minneapolis
Monson, L. J. ....Canby
Monsour, K. J. ....Rochester
Montgomery, Hamilton ...Rochester
Moore, I. H. ....Minneapolis
Moorhead, Marie ....Minneapolis
Moos, D. J. ....Minneapolis
Moquin, Marie A. ....Saint Paul
† Morehead, D. E. ....Owatonna
† Moren, Edward ....Minneapolis
† Moren, J. A. ....Saint Paul
Morgan, H. O. ....Amboy
Moriarty, Berenice ......Saint Paul
Moriarty, Cecile R. ......Saint Paul
Mork, A. H. ....Anoka
Mork, F. E. ....Anoka

Morlock, C. G. ....Rochester
Morris, C. R. ....Dallas, Texas
Morrison, C. J. ....Minneapolis
Morrison, R. W. ....Rochester
Morrow, R. P., Jr..New Orleans, La.
Morse, M. P. ....LeRoy
Morse, R. W. ....Minneapolis
Morsman, L. W. ....Hibbing
Mortensen, N. G........Minneapolis
‡ Morton, G. H. ..Scott Air Base, Ill.
Mosby, M. E. ....Long Prairie
Moses, R. R. ....Kenyon
Mouritsen, G. J. ......Fergus Falls
Moyer, J. B. ....Duluth
Mueller, S. C. ....Duluth
Muir, W. F. ....Browns Valley
‡ Mulholland, W. M. ....
Camp Atterbury, Ind.
Muller, A. E. ......No. Saint Paul
Muller, R. T. ....Saint Paul
Mulligan, A. M. ....Brainerd
Mundahl, H. P. ....Saint Paul
Munson, M. S. ....Barnum
Murphy, E. P. ....Minneapolis
Murphy, J. T. ....Saint Paul
Murphy, J. E. ....Marshall
Murray, R. A. ....Hibbing
Musachio, N. F. ....Foley
Mussey, Mary E. ....Rochester
Mussey, R. D. ....Rochester
Mussey, W. C. ....Rochester
Musty, N. J. ....Minneapolis
‡ Myers, III, C. ...San Antonio, Tex.
Myers, J. A. ....Minneapolis
Myers, T. T. ....Rochester
Myers, W. P. L. ....Rochester
Myhre, J. A. ....Minneapolis
Myre, C. R. ....Paynesville
Myre, T. T. ....Rochester

Naegeli, A. E. ....Basin, Mont.
Naegeli, Frank ....Fergus Falls
Nagel, H. D. ....Waconia
Nash, L. A. ....Saint Paul
Naslund, A. W. ....Minneapolis
Navratil, D. R. ....Montgomery
Neal, J. M. ....Minneapolis
Nealy, D. E. ....Adrian
Nealy, R. P. ....Minneapolis
Neel, H. B. ....Albert Lea
Neff, W. S. ....Virginia
Nehring, J. P. ....Preston
‡ Neils, V. E. ....Sauk Rapids
Nelson, Bernette G. ....Menagha
Nelson, Bernice A. ....Menagha
Nelson, C. A. ....Worthington
Nelson, C. B. ....Minneapolis
Nelson, C. E. J. ....Albert Lea
Nelson, D. E. ....Alexandria
Nelson, E. N. ....Minneapolis
Nelson, E. J. ....Owatonna
Nelson, G. E. ....Fairfax
Nelson, Harvey ....Minneapolis
† Nelson, H. E. ....Crookston
† Nelson, H. S. ...Los Angeles, Calif.
Nelson, K. L. ....Balaton
Nelson, L. S. ....Minneapolis
† Nelson, L. A. ....Saint Paul
Nelson, M. C. ....Minneapolis
Nelson, M. S. ....Granite Falls
Nelson, N. P. ....Minneapolis
Nelson, O. L. N. ....Minneapolis
Nelson, P. A. ....Rochester
Nelson, R. L. ....Duluth
Nelson, R. A. ....Fergus Falls
Nelson, W. I. ....Minneapolis
Nelson, W. O. B.......Fergus Falls
Nesbitt, Samuel ....Minneapolis
Nesheim, M. O. ....Emmons
Nessa, C. B. ....Saint Cloud
Nesset, L. B. ....Minneapolis
Nesset, W. D. ....Minneapolis
Neumaier, Arthur ....Glencoe
Neumann, C. A. ....Lewiston
Nichols, D. R. ....Rochester
Nicholson, J. W., III.....Rochester
Nicholson, M. A. ....Duluth
Nickerson, J. R. ....Heron Lake
Nickerson, N. D...Thief River Falls
Nielson, A. M. ....Northfield
Nietfeld, A. B. ....Warren
Nilson, H. J. ....No. Mankato
Nimlos, K. O. ....Saint Paul
Nimlos, Lenore O. .....Saint Paul
Ninneman, N. N. ....Waconia
Nixon, J. B. ....Crosby
Noble, J. F. ....Saint Paul
Noble, J. H. ....Graceville
Noble, J. L. ....Saint Paul
Noonan, W. J. ....Minneapolis
Noran, A. S. N. ....Minneapolis
Noran, H. H. ....Minneapolis
Norberg, C. E. ....Cloquet

Nord, R. E. ....Minneapolis
Nordin, G. T. ....Minneapolis
Nordland, Martin, Jr....Minneapolis
Nordland, Martin ......Minneapolis
Nordman, W. F. ....Mora
Norman, J. F. ....Crookston
Norris, N. T. ....Caledonia
Norval, M. A. ....Rochester
† Noth, H. W. ....Minneapolis
† Novak, E. E. ....New Prague
Nuebel, C. J. ....Hudson, Wis.
Nuessle, W. G. ....Springfield
Nuetzman, A. W. ....Faribault
Nutting, R. E. ....Duluth
Nydahl, M. J. ....Minneapolis
Nye, Katherine A........Saint Paul
Nye, Lillian L. ....Saint Paul
Nygren, W. T. ....Braham
Nylander, E. G. ....Minneapolis
† Nystrom, Ruth G. ....
Malibu Beach, Calif.

O'Brien, J. C. ....Saint Paul
O'Brien, L. T. ....Breckenridge
O'Cain, R. K. ....Rochester
O'Connor, D. C. ......Eden Valley
O'Connor, L. J. ....Saint Paul
O'Donnell, D. M. ....Ortonville
O'Donnell, J. E. ......Minneapolis
O'Hanlon, J. A. ......Minneapolis
O'Kane, T. W. ....Saint Paul
O'Keefe, J. P. ....Saint Cloud
O'Leary, J. H. ....Thief River Falls
O'Leary, P. A. ....Rochester
O'Neill, J. C. ....Duluth
O'Reilley, B. E. ....Saint Paul
O'Shaughnessy, E. J. .....Rochester
† Oberg, C. M. ....Minneapolis
Ochsner, C. G. ....Wabasha
Ockuly, Orville ....Saint Paul
Odel, H. M. ....Rochester
Oeljen, S. C. G. ....Waseca
Ogden, Warner ....Saint Paul
Ohage, Justus ....Saint Paul
Olds, G. H. ....New Richland
Olive, Jr., J. T. ....Rochester
Oliver, I. L. ....Graceville
Oliver, James ....Moorhead
Olmanson, E. G. ....Saint Peter
Olsen, A. M. ....Rochester
Olsen, E. G. ....Minneapolis
Olsen, R. L. ....Saint Paul
Olson, Albert E. ....Duluth
Olson, Albert J. ....Owatonna
Olson, Alton C. ....Minneapolis
Olson, Archibald O. ....Duluth
† Olson, Burton G. ......Minneapolis
Olson, Carlton K. ......Minneapolis
Olson, Charles A. ....Saint Paul
Olson, Chester J. ......Belle Plaine
Olson, Duane O. C. ....Gaylord
Olson, Ernest A. ......Pine Island
Olson, Grant E. ......West Concord
Olson, John W. ....Minneapolis
Olson, Lillian A. ....Ah-Gwah-Ching
† Olson, Olof A. ....Minneapolis
Onsgard, L. K. ....Houston
Openshaw, C. R. ....Rochester
Oppegaard, C. L. ....Crookston
Oppegaard, M. O. ....Crookston
Oppen, E. G. ....Minneapolis
‡ Orwoll, H. S. ....Decorah, Iowa
Osborn, D. O. ....Owatonna
Osborn, J. E. ....Rochester
Ostergaard, Erling ....Evansville
Ostergren, E. W. ....Saint Paul
Osterholm, R. S. ....Rochester
Ostling, B. C. ....Kerkhoven
Otto, H. C. ....Frazee
Ouellette, A. J. ....Saint Paul
Ourada, A. L. ....Waseca
Owen, H. W. ....Rochester
Owens, F. M., Jr. ......Minneapolis
Owens, W. A. ....Montevideo
*†Owre, Oscar ....Minneapolis

‡ Paciotti, V. J. ....Hibbing
Page, R. L. ....Saint Charles
Palen, B. J. ....Minneapolis
Palmer, C. F. ....Albert Lea
Palmer, H. A. ....Blackduck
† Palmer, W. L. ....Albert Lea
† Palmerton, E. S..........Minneapolis
Pankratz, P. J. ......Mountain Lake
Papermaster, Ralph ...Two Harbors
Papermaster, T. C. .....Minneapolis
Parker, C. W. ....Wadena
† Parker, O. W. ....Duluth
Parker, R. L. ....Rochester
Parker, W. E. ....Sebeka
Parker, W. H. ....Chisholm

Parkhill, Edith M. ....Rochester
Parkin, T. W. ....Rochester
Parson, E. I. ....Duluth
Parson, E. L. B........Elbow Lake
Parson, L. R. ....Elbow Lake
Parsons, R. L. ....Monterey
Parsons, W. B., Jr.......Rochester
Pasek, A. W. ....Cloquet
‡ Pasek, E. A. ....Cloquet
Patch, O. B. ....Duluth
Patterson, H. D. ....Slayton
Patterson, W. L........Fergus Falls
Patton, M. M., Jr. ....Eugene, Ore.
Paulson, G. S. ....Rochester
Paulson, J. A. ....Rochester
Paulson, T. S. ....Fergus Falls
Paynter, C. R. ....Rochester
Peabody, H. D., Jr...San Diego, Cal.
† Pearsall, R. P. ....Virginia
Pearson, B. F. ....Shakopee
Pearson, F. R. ....Saint Paul
Pearson, M. M. ....Saint Paul
Pearson, L. O. ....Erskine
Pease, Gertrude L. ....Rochester
Pedersen, A. H. ....Saint Paul
Pedersen, R. C. ....Duluth
Peluso, C. R. ....Minneapolis
Pemberton, J. de J.........Rochester
Pender, J. W. ....Rochester
† Penhall, F. W. ....Willmar
Penk, E. L. ....Springfield
Penn, G. E. ....Mankato
Pennie, D. F. V. ....Duluth
Peppard, T. A. ....Minneapolis
Perlman, E. C. ....Minneapolis
Perrigo, V. F. .....El Cajon, Calif.
Perry, Harold ....Rochester
Person, J. P. ....Albert Lea
Pertl, A. L. ....Canby
Peters, G. A. ....Rochester
Petersen, D. H. ....Northfield
Petersen, G. L. ....Minneapolis
† Petersen, J. R. ....Minneapolis
Petersen, M. C. ....Rochester
Petersen, P. C. ....Minneapolis
Petersen, R. T. ....Saint Cloud
Petersen, W. E. ....Minneapolis
Peterson, D. B. ....Saint Paul
Peterson, D. H. ....Saint Paul
Peterson, E. N. ....Virginia
Peterson, H. O. ....Saint Paul
Peterson, H. W. ....Minneapolis
Peterson, J. L. E. ......Saint Paul
Peterson, J. H. ....Duluth
Peterson, Kenneth ....Marshall
Peterson, K. H. ....Hutchinson
Peterson, L. J. ....Reno, Nevada
Peterson, N. P. ....Minneapolis
Peterson, O. L. ....Cokato
Peterson, O. H. ....Minneapolis
Peterson, O. H., Jr. ....Minneapolis
Peterson, P. E. ....Minneapolis
Peterson, R. A. ....Vesta
Peterson, S. C. ....Austin
Peterson, W. C. ....Minneapolis
Peterson, W. E. ....Willmar
Peterson, W. H. .....Spring Valley
Peterson, W. Henry.....Minneapolis
Petit, J. V. ....Minneapolis
Petit, L. J. ....Minneapolis
Petraborg, H. T. ....Aitkin
Pewters, J. T. ....Minneapolis
Peyton, W. T. ....Minneapolis
Pfuetze, K. H. ....Chicago, Ill.
Pfunder, M. C. ....Minneapolis
Phares, O. C. ....Saint Cloud
Phares, W. S. ....Rochester
Phelps, K. A. ....Minneapolis
Philp, D. R. ....Windom
Pierce, C. H. ....Wadena
Pierce, R. B. ....Wadena
Pierson, R. F. ....Slayton
† Piper, M. C. ......LaCanada, Calif.
Piper, W. A. ....Mountain Lake
Plasha, M. K. ....Glenwood
Plass, H. F. R.........Minneapolis
† Platou, E. S. ....Minneapolis
Pleissner, K. W. ..Saint Louis Park
Plimpton, N. C., Jr. ....Minneapolis
Plondke, F. J. ....Saint Paul
Plotke, H. L. ....Saint Paul
Pogue, R. E. ....Watertown
Pohl, D. E. ....Crookston
Pohl, J. F. M. ....Minneapolis
Poirier, J. A. ....Forest Lake
Pollard, D. W. ....Minneapolis
Pollock, D. K. ....Minneapolis
Polski, P. G. ....Saint Paul
Polzak, J. A. ....Minneapolis
Ponterio, J. E. ....Shakopee
Pool, T. L. ....Rochester
Poppe, F. H. ....Minneapolis
Porter, G. E. ....Rochester
Porter, O. M. ....Willmar
Post, D. B. ....Rochester

Potek, David ....International Falls
Potter, R. B. ....Minneapolis
Potthoff, C. J. ..Washington, D. C.
Power, J. E. ....Duluth
Powers, W. W. ....Rochester
Prangen, A. DeH. ....Rochester
Pratt, F. J., Jr. ....Minneapolis
† Pratt, F. J. ....Minneapolis
Pratt, J. H., Jr..........Rochester
Preine, I. A. ....Minneapolis
† Preisinger, J. W. ....Renville
† Prendergast, H. J. ......Saint Paul
Preston, P. J. ....Minneapolis
Prickman, L. E. ....Rochester
Pridgen, J. E. ...San Antonio, Tex.
Priest, R. E. ....Minneapolis
Priestley, J. T. ....Rochester
† Prim, J. A. ....Minneapolis
Prins, L. R. ....Albert Lea
Proeschel, R. K. ....Willmar
Proffitt, W. E..........Minneapolis
Proshek, C. E. ....Minneapolis
Pruitt, R. D. ....Rochester
Pugh, D. G. ....Rochester
Pumala, E. E. ....Waarren
Purves, G. H. ....Hendricks
Puumala, R. H. ....Cloquet
Pyle, Marjorie M. .....Cannon Falls

Quanstrom, V. E. ....Brainerd
Quattlebaum, Frank .....Saint Paul
Quello, R. O. B. ....Minneapolis
Quer, E. A. ....Rochester
† Quigley, W. P. ...Brooklyn, N. Y.
† Quist, H. W. ....Minneapolis
Quist, H. W., Jr.......Minneapolis

Raadquist, C. S. ....Hibbing
Raattama, J. W. ....Keewatin
* Radabaugh, R. C. ....Hastings
Raetz, S. J. ....Maple Lake
Raihala, John ....Virginia
* Raiter, R. F. ....Cloquet
Rall, J. E. ....New York, N. Y.
Ralph, J. R. ....Saint Paul
Ralston, D. E. ....Rochester
† Ramsey, W. R. ....Saint Paul
Randall, A. M. ....Ashby
Randall, L. M. ....Rochester
Randall, R. V. ....Rochester
Randall, W. H..Grand Forks, N. D.
Ransom, H. R. ....Osseo
† Ransom, M. L. ....Hancock
Rasmussen, R. C. ....Saint Paul
Rasmussen, W. C. ....Rochester
Ravits, H. G. ....Saint Paul
Rea, C. E. ....Saint Paul
Reader, D. R. ....Minneapolis
Reed, Paul ....Virginia
Reeve, E. A. T. ....Elbow Lake
Reff, A. R. ....Crookston
Regan, J. J. ....Minneapolis
Regnier, E. A. ....Minneapolis
Reid, J. W. ....Saint Paul
Reid, L. M. ....Excelsior
Reif, H. A. ....Minneapolis
Reif, H. J. ....Saint Cloud
Reiley, R. E. ....Minneapolis
† Reineke, G. F. ....New Ulm
Reitemeier, R. J. ....Rochester
Reiter, R. A. ....Rochester
Reitmann, J. H. ....Sanstone
ReMine, W. H., Jr.......Rochester
‡ Remsberg, R. R..Camp Rucker, Ala.
† Replogle, W. H...Los Angeles, Calif.
Resch, J. A. ....Minneapolis
Retter, Richard ....Rochester
Rice, C. O. ....Minneapolis
Rice, Frank B. ....Minneapolis
Rice, Fred A. ....Minneapolis
Rice, H. G. ....Moorhead
Rice, Roberta G..Grand Island, Neb.
Richards, E. T. F........Saint Paul
Richards, W. B. ....Saint Cloud
Richardson, E. J., Jr. ..Saint Paul
Richardson, H. E. ......Saint Paul
Richardson, R. J. ....Saint Paul
Richdorf, L. F. ....Minneapolis
Rick, P. F. W. ....Saint Paul
Riddell, R. V. ....Lowell, Mass.
† Ridgway, A. M. ....Annandale
Ridley, R. W. ....Rochester
Rieke, W. W. ....Wayzata
Rieschl, Elizabeth K. ....Jordan
Rigler, L. G. ....Minneapolis
‡ Rigler, R. G. .....Portsmouth, Va.
Ringle, O. F. ....Walker
Rinkey, Eugene ....Saint Paul
Riordan, Elsie M. .....Minneapolis
Ripley, H. R. ....Rochester
Risch, R. E. ....Minneapolis

Risser, A. F. ....Stewartville
Ritchie, W. P. ....Saint Paul
Ritt, A. E. ....Saint Paul
Rizer, D. K. ....Minneapolis
Rizer, R. I. ....Minneapolis
Robb, E. F. ....Minneapolis
† Robbins, C. P. ....Winona
Robbins, O. F. ....Minneapolis
Roberts, L. J. ....Minneapolis
Roberts, O. W. ....Owatonna
Roberts, S. W. ....Minneapolis
† Roberts, W. B. ....Minneapolis
† Robertson, J. B. ......Minneapolis
Robertson, P. A. ....Austin
Robilliard, C. M. ....Faribault
Robinett, R. W. ....Worthington
Robinson, A. W. ....Rochester
Robinson, C. O. ....Saint Paul
† Robinson, J. M. ....Duluth
Rocknem, R. E. ....Minneapolis
Rockwell, C. V. ....Minneapolis
Rockwood, P. H. ......Fergus Falls
† Rodda, F. C. ....Minneapolis
Rodgers, R. S. ....Minneapolis
Roehlke, A. B. ....Elk River
Roemer, H. J. ....Winona
Rogers, C. W. ....Winona
Rogers, S. F. ....Saint Paul
Rogin, Norton ....Farmington
Rogne, W. G. ....Spring Grove
Roholt, C. L. ....Waverly
Roholt, H. B. ....Fosston
Rohrer, C. A. ....Waterville
Rokala, H. E. ....Virginia
Rolig, D. H. ....Saint Paul
Rollins, T. G. ....Elmore
Rome, H. P. ....Rochester
Romness, J. O. ....Rochester
† Rood, D. C. ....Duluth
Rooke, E. D. ....Rochester
Rose, J. T. ....Lakefield
Rosendahl, F. G. ....Minneapolis
Rosenfield, A. B. ....Minneapolis
Rosenholtz, B. I. ....Saint Paul
Rosenow, J. H. ....Minneapolis
Rosenthal, F. H. ....Austin
Rosenthal, Robert ....Saint Paul
Rosenwald, R. M. ......Minneapolis
Rosin, J. D. ....Rochester
Ross, A. J. ....Minneapolis
Rossberg, R. A. ....Morris
Rossen, R. X. ....Hastings
Roth, G. C. ....Saint Paul
Rothschild, H. J. ....Saint Paul
Rotnem, O. M. ....Harmony
Roust, H. A. ....Montevideo
Routley, E. F. ....Rochester
Rovelstad, R. A. ....Rochester
Rowe, O. W. ....Duluth
Rowe, W. H. ....Fairmont
Roy, P. C. ....Saint Paul
Rozycki, Anthony ......Pine River
Rucker, C. W. ....Rochester
Rucker, W. H. ....Minneapolis
Rud, N. E. ....Minneapolis
Rudell, G. L. ....Minneapolis
Rudie, C. N. ....Saint Peter
Rudie, P. S. ....Duluth
Ruggles, G. M. ....Forest Lake
† Ruhberg, G. M.......Tarzana, Calif.
‡ Rumpf, C. W. ....Faribault
Runquist, J. M. ....Duluth
Rushton, J. G. ....Rochester
Russ, H. H. ....Blue Earth
Russeth, A. N. ....Minneapolis
Rustad, Ian ....Rochester
Rusten, E. M. ....Minneapolis
Rutherford, W. C. ....Brainerd
Rutledge, L. H. ......Detroit Lakes
Ryan, J. D. ....Saint Paul
Ryan, J. J. ....Saint Paul
Ryan, J. M. ....Saint Paul
* Ryan, M. E. ....Saint Paul
Ryan, W. J. ....Duluth
Rydburg, W. C. ....Minneapolis
Rydell, J. R. ....Rochester
Ryding, V. T. ....Dallas, Texas
† Rydland, A. D. ....Minneapolis
Rygh, H. N. ....Atwater
Rynda, E. R. ....New Prague
Rynearson, E. H. ....Rochester

‡ St. Cyr, H. M., Jr. ....
Camp McCoy, Wisc.
St. Cyr, K. J. ....Robbinsdale
Sach-Rowitz, Alvan .....Moose Lake
Sadler, W. P., Jr. .....Minneapolis
Saffert, C. A. ....New Ulm
Sahr, W. G. C. ....Hutchinson
Salassa, R. M. ....Rochester
Saliterman, B. I. ......Minneapolis
Salk, R. J. ....Herman
Salter, R. A. ....Virginia

Samuelson, L. G. ....Mankato
Samuelson, Samuel .....Minneapolis
Sandeen, R. M. ....Saint Paul
Sandell, S. T. ....Nopeming
†* Sanderson, E. T. ....Alexandria
Sanderson, D. J. ....Princeton
Sandt, K. E. ....Minneapolis
Sandven, N. O. ....Paynesville
† Sanford, A. H. ....Rochester
Sanford, J. A. ....Savage
‡ Sanford, J. B. ..Battle Creek, Mich.
Sanford, R. A. ....Minneapolis
Sarff, O. E. ....Duluth
Sargent, E. C. ....Austin
Sarnecki, M. M. ....Saint Paul
Satersmoen, Theodore ....
Pelican Rapids
Sather, E. L. ....Fosston
Sather, E. R. ....Alexandria
Sather, G. A. ....Fosston
Sather, R. N. ....Fosston
Sather, R. O. ....Crookston
Satterlee, H. W. ....Lewiston
Satterlund, V. L. ....Saint Paul
Sauer, W. G. ....Rochester
Saunders, B. H., Jr. ......Rochester
Savage, F. J. ....Saint Paul
Sawatzky, W. A. ....Minneapolis
Sax, M. H. ....Duluth
Sax, S. G. ....Duluth
Saxman, Gertrude O. ...Georgetown
Saxon, R. F., Jr. ....Rochester
Sayre, G. P. ....Rochester
‡ Sborov, A. M....Ft. McClellan, Ala.
Scanlon, P. W. ....Rochester
Schaaf, F. H. K. ....Minneapolis
† Schaar, Frances E. .....Minneapolis
Schade, F. L. ....Worthington
Schaefer, J. F. ....Owatonna
* Schaefer, Samuel ....Winona
Schaefer, W. G. ....Minneapolis
Schamber, W. F. ...Parkers Prairie
Schatz, F. J. ....Saint Cloud
Scheidel, A. McK. ....
Aberdeen, So. Dak.
Scheifley, C. H. ....Rochester
† Scheldrup, N. H. ....Minneapolis
Schell, R. F. ....Rochester
Scherbel, A. L. .....Cleveland, Ohio
Scherer, L. R. ....Minneapolis
Scherling, S. S. ....Minneapolis
Schiele, B. C. ....Minneapolis
Schimelpfenig, G. T. ....Chaska
Schirber, M. J. ......Grand Rapids
Schlesselman, G. H. ....Minneapolis
Schmid, J. F. ....Duluth
Schmidt, G. F. ....Minneapolis
Schmidt, H. W. ....Rochester
Schmidt, H. R. ....Winona
Schmidt, J. R. ......Mountain Lake
† Schmidt, P. A. .....Monroe, Oregon
Schmidt, P. G., Jr. ....Granite Falls
Schmidt, R. F. ....Alden
Schmidtke, R. L. ....Saint Paul
† Schmitt, S. C. ....San Diego, Calif.
Schmitz, A. A. ....Mankato
Schmitz, E. J. ....Seattle, Wash.
Schmitz, G. P. ....Little Falls
†*Schneider, J. P. ....Minneapolis
Schneider, L. E. ....Duluth
Schneider, P. J. ....Adams
† Schneider, R. A. ..New York, N. Y.
Schoch, R. B. J. ....Saint Paul
Schoeneberger, P. B. ....Perham
Scholpp, O. W. ....Hutchinson
Scholz, D. A. ....Rochester
Schons, Edward ....Saint Paul
*†Schottler, G. J. ....Dexter
Schottler, M. E. ....Minneapolis
Schroder, C. H. ....Duluth
Schroeckenstein, H. F....Saint Paul
Schroeder, A. J. ....Minneapolis
Schroeppel, J. E. ....Winthrop
Schulberg, V. A. ....Arlington
† Schuldt, F. C. ....Saint Paul
† Schultz, J. A. ....Albert Lea
Schultz, J. H. ....Minneapolis
Schultz, P. J. ....Minneapolis
Schulze, A. G. ....Saint Paul
Schulze, W. M. ....Minneapolis
Schutz, E. S. ....Mountain Lake
Schwartz, V. J. ....Minneapolis
Schweiger, T. R. ....Hibbing
*†Schwyzer, Gustav ......Minneapolis
Schwyzer, H. C. ....Saint Paul
Scott, E. E. ....Saint Paul
† Scott, F. H. ....Minneapolis
Scott, H. G. ....Minneapolis
Scribner, B. H. ....Rochester
Scudamore, H. H. ....Rochester
Seaberg, J. A. ....Minneapolis
Seagle, J. B. ....Rochester
Seale, Ruth A. ....Rochester
† Seashore, Gilbert ....Minneapolis
Seebach, Lydia M. ....Rochester

Seery, T. M. ....Austin
† Segal, M. A. ....Minneapolis
Seifert, M. H. ....Excelsior
Seifert, O. J. ....New Ulm
Sekhon, M. S. ....Saint Paul
Seldon, T. H. ....Rochester
Seljeskog, S. R. ....Minneapolis
Sellers, G. K. ....Dassel
Selmo, J. D. ....Norwood
Semsch, R. D. ....Minneapolis
† Senkler, G. E. ....Saint Paul
Senn, E. W. ....Owatonna
Sether, A. F. ....Ruthton
Setzer, H. J. ....Saint Paul
Shandorf, J. F. ....Minneapolis
Shands, W. C. ....Rochester
Shannon, W. R. ....Saint Paul
Shaperman, Eva P. .....Minneapolis
Shapiro, M. J. ....Minneapolis
Shapiro, S. K. ....Minneapolis
Sharp, D. V. ....Minneapolis
Shaw, H. A. ....Minneapolis
Shea, A. W. ....Minneapolis
Sheedy, C. L. ....Austin
† Shellman, J. L. ....
Pacific Palisades, Calif.
Sheppard, C. G. ....Hutchinson
Sher, D. A. ....Virginia
Sher, Lewis ....Minneapolis
† Sherman, A. G. ....Minneapolis
Sherman, C. H. ....Bayport
Sherman, C. L. ....Luverne
Sherman, H. T. ....Cambridge
Sherman, L. F. ....Minneapolis
Sherman, R. V. ....Red Wing
Sherwood, G. E. ....Kimball
Shick, R. M. ....Rochester
‡ Shimonek, S. W. ...Great Lakes, Ill.
‡ Shocket, Everett .....Dayton, Ohio
Sholl, P. R. ....Rochester
Short, Jacob ....Saint Paul
* Shrader, E. E. ....Watertown
Shronts, J. F. ....Minneapolis
Sickels, E. W. ....Saint Paul
Siegel, Clarence ....Saint Paul
Siegel, J. S. ....Virginia
Siegmann, W. C. ....Minneapolis
‡ Siekert, R. G. .....Philadelphia, Pa.
Siemon, Glenn ....Rochester
Silver, J. D. ....Minneapolis
Simison, Carl ....Barnesville
Simon, T. R. ....Saint Cloud
Simons, B. H. ....Chaska
Simons, E. J. ....Minneapolis
† Simons, J. H. ....Minneapolis
Simons, L. T. ....Saint Paul
Simmons, W. H. ....Rochester
Simonson, D. B. ....Minneapolis
Simonton, K. MacL. ......Rochester
Simpson, E. D. ....Minneapolis
Sinamark, Andrew ....Hibbing
Singer, B. J. ....Saint Paul
Sinykin, M. B. ....Minneapolis
Siperstein, D. M. ....Minneapolis
Sisk, H. E. ....Saint Cloud
Sisler, C. E. ....Grand Rapids
Sisterman, T. J. ....Minneapolis
† Sivertsen, Andrew .....Minneapolis
† Sivertsen, Ivar ....Minneapolis
Sjoding, J. D. ....Mankato
Sjostrom, L. E. ....Saint Peter
Skaug, H. M. ....Chatfield
Skinner, Abbott ....Saint Paul
† Skinner, H. O. ....Saint Paul
Skjold, A. C. ....Minneapolis
Skogerboe, R. B. ....Karlstad
Slater, S. A. ....Worthington
Slocumb, C. H. ....Rochester
Smiley, J. T. ....Minneapolis
Smisek, E. A. ....Saint Paul
Smisek, F. M. E. ....Minneapolis
Smith, Adam M. ....Minneapolis
Smith, Archie M. ......Minneapolis
Smith, B. A., Jr. ......Minneapolis
Smith, C. M. ....Duluth
Smith, D. V. ....Blue Earth
Smith, Franklin R. ...Seattle, Wash.
† Smith, Fredk. L. ....Rochester
Smith, George R. ....Hutchinson
Smith, Graham G. ......Minneapolis
Smith, H. L. ....Rochester
Smith, H. R. ....Minneapolis
Smith, Leon G. ....Montevideo
Smith, Lloyd A. ....Tyler
Smith, Lucian A. ....Rochester
† Smith, Margaret I. .....Robbinsdale
Smith, Marie A. ....Minneapolis
† Smith, Myron W. ....Red Wing
Smith, N. D. ....Rochester
Smith, N. M. ....Minneapolis
Smith, N. R. ....Minneapolis
Smith, Paul M. ....Lake Crystal
Smith, T. S. ....Minneapolis
Smith, V. D. E. ....Saint Paul
Smith, W. R. ....Grand Marais

Smorszczok, Mitrofan ....Monticello
Smyth, J. J. ....Lester Prairie
Snyder, C. D. ....Kiester
Snyder, G. W. ....Saint Paul
Snyker, O. E. ....Ely
Soderlind, R. T. ....Minneapolis
Sogge, L. L. ....Windom
Sohlberg, O. I. ....Saint Paul
† Sohmer, A. E. J. ....Mankato
Solhaug, S. B. ....Minneapolis
Solsem, F. N. S. ....Spicer
Solvason, H. M. ....Minneapolis
Sommers, Ben ....Saint Paul
Sonnesyn, N. N. ....Le Sueur
Sorem, M. B. ....Saint Paul
Sorum, F. T. ....Jasper
Soucheray, P. H. ....Saint Paul
Soule, E. H. ....Rochester
Souster, B. B. ....Saint Paul
Spang, A. J. ....Duluth
Spang, J. S. ....Duluth
Spano, J. P. ....Minneapolis
Spear, H. C. ....Rochester
Spear, I. M. ....Rochester
Spencer, B. J. ....Rochester
Spink, W. W. ....Minneapolis
Spock, B. M. ....Pittsburgh, Pa.
Sponsel, K. H. ....Minneapolis
Sprafka, J. L. ....Saint Paul
Sprafka, J. M. ....Saint Paul
Sprague, R. G. ....Rochester
† Spratt, C. N. ....Minneapolis
Spurzem, R. J. ....Anoka
Stahler, P. A. ....Jordan
Stahr, A. C. ....Hopkins
Stam, John ....Worthington
Stanford, C. E. ....Minneapolis
Stangl, P. E. ....Saint Cloud
Stanley, C. R. ....Worthington
Stapley, L. A., Jr. ....Rochester
Starekow, M. D. ..Thief River Falls
Stark, D. B. ....Rochester
State, David ....Minneapolis
‡ Staub, H. P. ....
Ft. Leonard Wood, Mo.
Stauffer, M. H. ....Rochester
Steffens, L. A. ....Red Wing
Stein, K. E. ....Lakeville
Stein, R. J. ....Pierz
Steinberg, C. L. ....Saint Paul
Steiner, I. W. ....Winona
Steiner, L. E. ....Albert Lea
Stelter, L. A. ....Minneapolis
Stemsrud, H. L. ....Alexandria
‡ Stennes, J. L. ....
Camp Atterbury, Ind.
* Stephan, E. E. ....Hinckley
Sterner, D. C. ....Saint Paul
Sterner, E. G. ....Saint Paul
Sterner, E. R. ....Saint Paul
Sterner, J. J. ....Saint Paul
* Sterner, O. W. ....Saint Paul
Stevenson, B. M. ....Fulda
Stevenson, F. W. ....Faribault
Stewart, Alexander ......Saint Paul
Stewart, D. E. ....Crookston
Stewart, M. J. ....Minneapolis
Stewart, R. I. ....Minneapolis
Stickney, J. M. ....Rochester
‡ Stiegler, F. S. ..Nurenberg, Germany
Stillwell, W. C. ....Mankato
Stilwell, G. G. ....Rochester
Stinson, J. C., Jr. ....Rochester
Stoesser, A. V. ....Minneapolis
Stolpestad, A. H. ....Saint Paul
Stolpestad, H. L. ....St. Paul
† Stomel, Joseph ...Los Angeles, Calif
‡ Stone, N. F. ....Chicago, Ill.
Stone, S. P. ....Minneapolis
Storsteen, K. A. ....Rochester
Stowe, H. R. ....Rochester
Stoy, R. A. ....Little Falls
† Strachauer, A. C. ......Minneapolis
Strandjord, N. M. ....Virginia
Stransky, T. W. ....Owatonna
Strate, G. E. ....Saint Paul
Strathern, C. S. ....Saint Peter
† Strathern, F. P. ....Saint Peter
† Strathern, M. L. ....Gilbert
Stratte, A. K. ....Pine City
Stratte, H. C. ....Windom
Straus, M. L. ....Saint Paul
Strauss, E. C. ....Duluth
Street, Bernard ....Northfield
Strem, E. L. ....Saint Paul
Strewler, G. J. ....Duluth
Strickler, J. H. ....Minneapolis
Strobel, W. G. ....Duluth
Stroebel, C. F., Jr. ......Rochester
Strom, G. W. ....Minneapolis
Stromgren, D. T. ......Minneapolis
Stromme, W. B. ....Minneapolis
* Stuart, A. B. ....Cloquet
Studer, D. J. ....Faribault
Stuhler, L. G. ....Rochester
Stuhr, J. W. ....Stillwater
Sturges, R. L. ....Minneapolis
Sturley, R. F. ....Saint Paul
† Subby, Walter ....Minneapolis
Sukov, Marvin ....Minneapolis
† Sutherland, C. G. ....Rochester
Sutherland, H. N. ....Ely
Sutherland, W. H. ....Benson
Sutton, H. R. ....Hoffman
Swanson, J. A. ....Saint Paul
Swanson, L. J. ....West Saint Paul
Swanson, R. E. ....Minneapolis
† Swanson, V. F. ..Los Angeles, Calif.
Swedberg, W. A. ....Duluth
Swedenburg, P. A. ......Glenwood
Sweetser, H. B., Jr. ....Minneapolis
Sweetser, T. H. ....Minneapolis
† Sweitzer, S. E. ....Minneapolis
† Swendseen, C. G. ......Minneapolis
Swendson, J. J. ....Saint Paul
Swensen, R. G. ......North Branch
Swenson, A. O. ....Duluth
Swenson, O. J. ....Waseca

Takaro, Timothy ....Rochester
Tangen, G. M. ....Minneapolis
Tanquist, E. J. ....Alexandria
Taylor, A. B. ....Rochester
Taylor, B. E. ....Lincoln, Neb.
*†Taylor, C. W. ....Duluth
Taylor, J. H. ....Minneapolis
Taylor, L. M. ....Rochester
Taylor, R. W., Jr. ....Rochester
Teich, K. W. ....Duluth
Teisberg, C. B. ....Saint Paul
Teisberg, J. E. ....Saint Paul
Teitgen, R. E. .....Milwaukee, Wis.
Tenner, R. J. ....Minneapolis
Terrell, B. J. ....Nopeming
Terry, W. S. ....Minneapolis
Tesch, G. H. ....Elk River
‡ Tetlie, J. P. ....Camp Carson, Colo.
† Thabes, J. A., Sr. ....Brainerd
Thabes, J. A., Jr. ....Brainerd
Thayer, E. A. ....Fairmont
Thelen, E. P. ....Rochester
Thielen, R. D. ....Saint Michael
Thomas, G. E. ....Minneapolis
† Thomas, G. H. ....Minneapolis
Thomas, W. H. ......Howard Lake
Thomes, A. B. ....Minneapolis
Thompson, Arthur ....Cokato
Thompson, C. O. ....Hendricks
Thompson, F. A. ....Saint Paul
Thompson, G. J. ....Rochester
Thompson, H. B. ....Saint Cloud
Thompson, W. H. ......Minneapolis
Thomson, J. M. ....Minneapolis
Thoreson, M. C. Bernice ....
South Saint Paul
Thorsen, D. S. ....Saint Paul
Thorson, S. V. ....Minneapolis
Thysell, Desmond M. ...Minneapolis
Thysell, Fred A. ....Moorhead
Thysell, V. D. ....Hawley
* Tibbetts, M. H. ....Duluth
Tifft, C. R. ....Saint Paul
Tihen, E. N. ....Rochester
Tillisch, J. H. ....Rochester
† Tingdale, A. C. ....Minneapolis
Tingdale, Carlyle ....Hibbing
Tinkham, R. G. ....Minneapolis
Titrud, L. A. ....Minneapolis
Tobin, John D. ....Minneapolis
Tobin, John R., Jr. ......Rochester
Todd, Romona L. ....Minneapolis
Tompkins, R. G. ....Rochester
† Torgerson, Wm. B. ....Oklee
Tosseland, N. E. ....Duluth
Trach, B. B. ....Minneapolis
Tracht, R. R. ....Saint Paul
Traeger, Carl A. ....Faribault
Travis, James S. ....Saint Paul
Traxler, J. F. ....Henderson
Tregilgas, H. R. ..South Saint Paul
* Trommald, Gladys ....Brainerd
Troost, H. B. ....Mankato
Trow, James E. ....Minneapolis
Trow, Wm. H. ....Minneapolis
Trueman, H. S. ....Minneapolis
Truesdale, C. W. ....Glencoe
Trutna, T. J. ....Silver Lake
Tudor, R. B. ....Minneapolis
† Tunstead, H. J. ....Minneapolis
Tuohy, E. L. ....Duluth
† Turnacliff, D. D. ....Saint Paul
† Tweedy, Geo. J. ....Winona
Tweedy, J. A. ....Winona
Tweedy, R. B. ....Winona
Twiggs, L. F. ....:.....Austin
† Twomey, J. E. ....Minneapolis

Ude, Walter H. ....Minneapolis
Uhley, C. G. ....Crookston
Uihlein, Alfred ....Rochester
† Ulrich, Henry L. ....Minneapolis
Ulvestad, H. S. ....Minneapolis
Undine, C. A. ....Minneapolis
Upson, Mark, Jr. ....Rochester
Urberg, S. E. ....Duluth
‡ Utne, J. R. ....Northfield
Utz, John P. ....Rochester
Uzmann, John W..............
Lynbrook, Long Island, N. Y.

Vadheim, A. L. ....Tyler
Vadheim, L. A. ....Rochester
Valenti, D. A. ....Thief River Falls
Valentine, W. H. ....Tracy
Van Cleve, H. P., Jr. ....Austin
Van Bergen, F. H. .....Minneapoli
Vandersluis, C. W. ....Bemidji
Van Herik, Martin ......Rochester
Van Meier, Henry ....Stillwater
Van Patter, Ward ....Rochester
Van Rooy, G. T. ..Thief River Falls
Van Ryzin, D. J. ....Duluth
Van Valkenberg, J. D. ..Floodwood
Van Vleet, Mary E. ......Rochester
Varco, R. L. ....Minneapolis
Vaughan, V. M. ....Truman
‡ Vaughn, C. G. ....
Ft. Leonard Wood, Mo.
Vaughn, L. D. ....Rochester
Veirs, D. M. ....Saint Paul
Veirs, Ruby J. S. ....Saint Paul
Venables, A. E. ....Saint Paul
Veranth, L. A. ....Saint Cloud
Verby, J. E., Jr. ....Litchfield
Vezina, J. C. ....Mapleton
Vik, Arthur E. ....Minneapolis
Vik, Melvin ....Onamia
Virnig, Mark P. ....Wells
Virnig, Richard P. ....Wells
Vogel, H. A. L. ....New Ulm
Vollmer, F. J. ....Winona
von Amerongen, W. W. ..Saint Paul
Von Drasek, J. ....Mankato
Vrtiska, F. L. ....Saint Cloud

Waas, C. W. ....Saint Paul
Wadd, C. T. ....Janesville
Wagener, H. P. ....Rochester
Wagner, N. W. ....Graceville
Wahlquist, H. F. ....Minneapolis
Wakefield, E. G. ....Rochester
† Wakim, K. G. ....Rochester
Walder, H. J. ....Duluth
Waldron, C. W. ....Minneapolis
Walfred, K. A. ....Saint Cloud
† Walker, A. E. ....Duluth
Walker, Arthur E. ......Saint Paul
Wall, C. R. ....Minneapolis
Wallace, M. O. ....Duluth
† Waller, J. D. ....Pine City
Walsh, Edw. F. ....Saint Paul
Walsh, F. M. ....Minneapolis
Walsh, W. T. ....Minneapolis
Walter, C. Wm. ....Saint Paul
Walter, F. H. ...International Falls
Walter, Guy F. ....Farmington
Walters, Waltman ....Rochester
Wandke, O. E. ....Fairmont
Wang, Jun-Chuan ......Minneapolis
Wangensteen, O. H. ...Minneapolis
Ward, Louis E. ....Rochester
† Ward, Peter D. ....Saint Paul
Ward, Percy A. ....Minneapolis
Warner, James J. ....Perham
Warren, C. A. ....Saint Paul
Wasson, L. F. ....Alexandria
Watkins, C. H. ....Rochester
‡ Watkins, J. A. ....Windom
Watson, A. M. ....Royalton
Watson, C. G. ....Minneapolis
Watson, C. J. ....Minneapolis
Watson, J. B. ....Rochester
Watson, J. R. ....Rochester
Watson, P. Theo. ....Saint Paul
Watson, Percy T. ......Minneapolis
‡ Watson, R. M. ..Camp Rucker, Ala.
Watson, S. Wm. ....Royalton
Watson, Wm. H. A. .....Saint Paul
Watson, Wm. J. ....Newport
Watz, C. E. ....Saint Paul
Waugh, J. M. ....Rochester
† Weaver, M. M. ....
Vancouver, B. C., Canada
Weaver, P. H. ....Faribault
Webb, E. A. ....Minneapolis
Webb, James H. ....Rochester
Webb, R. C. ....Minneapolis
Webber, F. L. ....Saint Paul

Webber, R. J. ....Hopkins
Weber, H. M. ....Rochester
Weber, W. E. ....Rochester
Wedes, D. J. ....Belgrade
Weed, L. A. ....Rochester
Weir, J. F. ....Rochester
Weis, B. A. ....Saint Paul
Weisberg, Maurice ......Saint Paul
Weisberg, R. J. ....Minneapolis
Wellman, T. G. ......Clinton, Iowa
Wellman, Wm. E. ....Rochester
Wells, A. H. ....Duluth
Wells, W. B. ....Jackson
Wendland, J. P. ....Minneapolis
Wenner, W. T. ....Saint Cloud
Wente, H. A. ....Rochester
† Wentworth, A. J. ....Mankato
Wenzel, G. P. ....Saint Paul
Werner, George ....Minneapolis
Wesolowski, S. P. ......Minneapolis
† West, Catherine C. .....Minneapolis
Westby, Magnus ....Madison
† Westerman, A. E. .....Montgomery
Westerman, F. C. ......Montgomery
‡ Westphal, K. F. .....Portland, Ore.
Westrup, J. E. ....Lanesboro
† Wethall, A. G. ....Minneapolis
Wetherby, M. ....Minneapolis
Wetzel, E. V. ....Saint Cloud
Weum, T. Wm. ....Minneapolis
Weyand, R. D. ....Rochester
‡ Weyhrauch, R. A.....Phoenix, Ariz.
Wheeler, D. W. ....Duluth
† Wheeler, M. W. ....Lake Elmo
† Whitacre, J. C. ....Saint Paul
White, Asher A. ....Minneapolis
White, S. Marx ....Minneapolis
White, W. D. ....Minneapolis
Whitesell, L. A. ....Minneapolis
Whitney, R. A. ....Cambridge
Whitson, S. A. ....Albert Lea
Whittemore, D. D. ....Bemidji
Widen, W. F. ....Minneapolis
Wikoff, H. M. ....Bemidji
† Wilcox, A. E. ....Minneapolis
Wilcox, G. C. ....Saint Peter
† Wilder, K. W. ....Minneapolis
Wilder, R. L. ....Minneapolis
Wilder, R. M., Jr. .....Minneapolis
Wilhelm, W. F. ....Rochester

Wilken, P. A. ....Minneapolis
† Wilkinson, Stella L. ....Faribault
Wilkowske, R. J. ....Owatonna
Will, C. B. ....Bertha
Will, W. W. ....Bertha
† Willcutt, C. E. ......Phoenix, Ariz.
Williams, A. B. ....Saint Paul
Williams, B. F. P. ....Duluth
Williams, C. A. ....Pipestone
Williams, C. K. ....Saint Paul
Williams, H. L., Jr. ......Rochester
Williams, H. O. ....Lake Crystal
Williams, J. A. ....Saint Paul
Williams, L. B. ....Rochester
† Williams, L. A. ......Portland, Ore.
Williams, M. M. ....Ah-Gwah-Ching
Williams, M. R. ......Cannon Falls
† Williams, R. V. ....Rushford
† Williams, Robert .....Carthage, Ill.
Williamson, H. A. ......Heron Lake
Willius, F. A. ....Rochester
Wilmot, C. A. ....Litchfield
Wilmot, H. E. ....Litchfield
Wilson, C. E. ....Blue Earth
Wilson, F. C. ....Austin
Wilson, J. A. ....Saint Paul
Wilson, J. V. ....Saint Paul
Wilson, R. B. ....Rochester
Wilson, R. H. ....Winona
Wilson, Russell H. ....Minneapolis
Wilson, V. O. ....Rochester
Wilson, W. E. ....Northfield
† Wilson, Wm. F. ....Lake City
† Wiltrout, I. G. ....Oslo
Winburn, J. R. ....Rochester
Winchester, Wm. W. .....Rochester
Wingquist, C. G. ....Crosby
Winnick, J. B. ....Saint Paul
Winter, J. A. ....Duluth
Winther, Nora M. C. ..Minneapolis
Wipperman, F. F. .....Minneapolis
Wisness, O. A. ....Slay
Witham, C. A. ....Minneapolis
Wittich, F. W. ....Minneapolis
Wittrock, L. H. ....Watkins
Wohlrabe, A. A. ....Minneapolis
Wohlrabe, A. C. ....Minneapolis
Wohlrabe, C. F. ......No. Mankato
Wohlrabe, E. J. ....Springfield
Wold, Karl C. ....Saint Paul

Wolf, A. H. ....Minneapolis
Wolff, Helen B. ....Worthington
Wolff, H. J. ....Saint Paul
Wolkoff, H. J. ....Saint Paul
Wollaeger, E. E. ....Rochester
Wolstan, S. D. ....Minneota
Woltjen, M. J. ....Rushford
Woltman, H. M. F. ......Rochester
† Wood, Harry G. ....Rochester
† Wood, R. A. ....Minneapolis
Woolling, K. R. ....Rochester
Woolner, L. B. ....Rochester
Word, H. L. ....Saint Paul
Worden, R. E. .....Columbus, Ohio
Workman, W. G. ....Tracy
† Wray, Wm. E. ....Campbell
Wright, R. R. ....Austin
Wright, S. M. ....Rochester
Wright, W. S. ....Minneapolis
Wright, Wm. S. ....Minneapolis
Wurdemann, Alma L. ....
White Bear Lake
Wyatt, O. S. ....Minneapolis
Wynne, H. M. N. ......Minneapolis

Yaeger, W. W. ....Marshall
Ylvisaker, R. S. ....Minneapolis
Yoerg, O. W. ....Minneapolis
Young, H. H. ....Rochester
Young, T. O. ....Duluth
Younger, L. I. ....Winona
Youngren, E. R. ....Saint Paul

Zachman, A. H. ....Melrose
Zachman, L. L. ....Saint Paul
Zaworski, L. A. ....Minneapolis
Zeigler, C. M. ....Pine River
Zemke, E. E. ....Fairmont
Zick, Luther H. ....Rochester
Zierold, A. A. ....Minneapolis
Zimmer, F. E. ....Rochester
Zimmerman, H. B. .....Saint Paul
Zinter, F. A. ....Minneapolis
Ziskin, Thos. ....Minneapolis
*†Zlatovski, M. L. ....Duluth
Zupanc, E. A. ....Duluth

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Feinberg, S. M.: Asthma—Present Status of Therapy, Chicago M. Soc. Bull. 51:1062 (June 18) 1949.

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Minnesota Academy of Medicine

Meeting of November 8, 1950

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town and Country Club on Wednesday evening, November 8, 1950. Dinner was served at 7 o'clock and the meeting was called to order at 8:10 p.m. by the President, Dr. William A. Hanson.

There were forty-nine members and one guest present.

Minutes of the October meeting were read and approved.

There was some discussion regarding the new amendments to the Articles of Incorporation, but a motion was finally passed that those articles in question be reported back to the committee from which they came for rewording, and to be reported at a later meeting.

A motion was carried that the election of new members be deferred until the next regular election in April, 1951.

Dr. Theodore Sweetser read the following Memorial to Dr. A. E. Cardle, and a motion was carried that it be spread on the records of the Academy and a copy sent to the family.

ARCHIBALD E. CARDLE
1899-1950

The loss of Archibald Cardle in the airplane disaster of June 23, 1950, was a shock to Minneapolis and to the medical profession of Minnesota and the nation. His accomplishments were well known, as was the promise of his future.

We who knew him personally through the years realized what a loss he would be to his profession in its scientific efforts as well as in its relations to the rest of the population. But more than that, we realized that we had lost a patient, understanding, kindly colleague and friend.

Our knowledge of his life here makes us sure that he has attained a well-earned reward. But we know how sorely he is missed by his friends, and especially by his family, to whom we wish to express our heartfelt sympathy.

* * *

The scientific program followed.

Dr. Charles H. Slocumb, of Rochester, by invitation, gave the paper of the evening, entitled "Use of Cortisone and ACTH in Rheumatoid Arthritis." Lantern slides were shown.

The meeting was adjourned.

Wallace P. Ritchie, M.D., *Secretary*

Meeting of December 13, 1950

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town and Country Club on Wednesday evening, December 13, 1950. Dinner was served at 7 o'clock and the meeting was called to order at 8:15 p.m. by the President, Dr. William A. Hanson.

There were fifty-nine members and twenty-two guests present.

The following men were elected as officers for the year 1951:

President..........Dr. William Hengstler, Saint Paul
Vice President..............Dr. O. H. Wangensteen,
University of Minnesota
Secretary-Treasurer.........Dr. Wallace P. Ritchie,
Saint Paul (Re-elected)

This meeting was in "Special Commemoration of the Twentieth Anniversary of the First Publications on Intestinal Obstruction by Dr. Owen H. Wangensteen."

Dr. Claude F. Dixon, of Rochester, had been invited to give the paper of the evening. He chose as his subject, "Prognostic Factors in Colonic Malignancy" (See page 424).

The meeting was adjourned.

Wallace P. Ritchie, M.D., *Secretary*

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1. Fauley, G. B., Freeman, S., Ivy, A. C., Atkinson, A. J., and Wigodsky. H. S.: Arch. Int. Med. 67:653, 1941.
2. Upham, R., and Chaikin, N. W.: Rev. Gastroenterol. 10:287, 1943.
3. Collins, E. N.: J. A. M. A. 127:890, 1945.

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✦ Reports and Announcements ✦

INTERNATIONAL ACADEMY OF PROCTOLOGY

The third annual convention of the International Academy of Proctology will be held at the Mayflower in Atlantic City, N. J., on June 7 and 8, 1951.

The scientific session of the program will feature the more recent developments in proctology through papers presented by outstanding speakers. These sessions will be open to members of the medical profession without charge.

The annual banquet of the Academy will take place on Thursday evening, June 7, 1951.

Further information concerning the convention and a copy of the program may be obtained by writing to the secretary, Dr. Alfred J. Cantor, International Academy of Proctology, 1819 Broadway, New York 23, N. Y.

INTERNATIONAL CONGRESS OF PHYSICAL MEDICINE (1952)

The International Congress of Physical Medicine will be held in London from July 14 to 19, 1952.

In accordance with the regulations of the International Federation of Physical Medicine, the meetings of the Congress will be reserved for matters dealing with the clinical, remedial, prophylactic and educational aspects of physical medicine and with the diagnostic and therapeutic methods employed in physical medicine and rehabilitation.

Technical, scientific and historical exhibitions also will be arranged.

In addition to the scientific program, a full program of social events and entertainment is being planned for the members and associate members. Arrangements for London and provincial visits of scientific and historical interest are also being made for the Congress week and the following week.

This is a preliminary notice, and full details will be announced later. Applications for the provincial program should be addressed to the Honorary Secretary, International Congress of Physical Medicine (1952), 45, Lincoln's Inn Fields, London, W.C.2.

AMERICAN PUBLIC HEALTH ASSOCIATION

The seventy-ninth annual meeting of the American Public Health Association, the eighteenth annual meeting of its western branch and the annual meetings of thirty-eight related organizations will be held simultaneously in San Francisco, October 29 to November 2. The combined meetings will bring together 5,000 health specialists from all parts of the Western Hemisphere. In San Francisco they will hear more than 400 authorities discuss modern public health practice in all its aspects and its vital relationship to national security and civilian defense.

CANCER MOTION PICTURES AVAILABLE

The Minnesota Division, American Cancer Society, has announced the availability of a new catalog of professional motion pictures related to cancer. This catalog, which lists the films available from the American Cancer Society, can be obtained from the Minnesota Division office.

Dr. Arthur H. Wells of Duluth, president of the Minnesota Division of the ACS, has pointed out that these professional films on cancer may be loaned to professional groups for showing in connection with meetings at which cancer may be discussed. These groups may be hospital staffs, medical schools, nursing schools, postgraduate courses in cancer, state and county medical meetings. There is no charge for the use of these films. Persons interested in obtaining a copy of the catalog may write to the Minnesota Division office of the American Cancer Society at 622 Commerce Building, Saint Paul 1.

MINNESOTA SOCIETY FOR CRIPPLED CHILDREN

The Minnesota Society for Crippled Children is a component part of the National Society for Crippled Children. In recent years the Society has been putting on an Easter Seal drive to raise funds to carry on the nationwide activities of this organization to help children and adults, who are crippled in one way or another, to live normal lives.

This year the Easter Seal drive in Minnesota fell behind other states. Some $80,000 more is needed to carry on the statewide activities desired. With the many requests for contributions, it is easy to let the small contribution to this society slide. Not necessarily a large contribution, but a large number of small contributions, will enable the society to carry out its work locally without curtailment.

Contributions may be sent to the Minnesota Society for Crippled Children and Adults, 1635 Hennepin Avenue, Minneapolis 3, Minnesota.

MINNESOTA SOCIETY OF MEDICAL TECHNOLOGISTS

The Minnesota Society of Medical Technologists will hold its annual convention on May 18 in the Minneapolis Auditorium and on May 19 at the Mayo Clinic Women's Club, Rochester.

Dr. Walter H. Seegers, professor of physiology and chairman of Wayne University College of Medicine, Detroit, Michigan, will be the guest speaker for the scientific meeting on the afternoon of May 18. He will discuss "Clotting of Blood" from 2:00 to 4:00 p.m. in Room 5, Minneapolis Auditorium.

At the morning session, from 10:30 to 12:00, in Room 5, Minneapolis Auditorium, Dr. Paul G. Frick and Miss

(Continued on Page 498)

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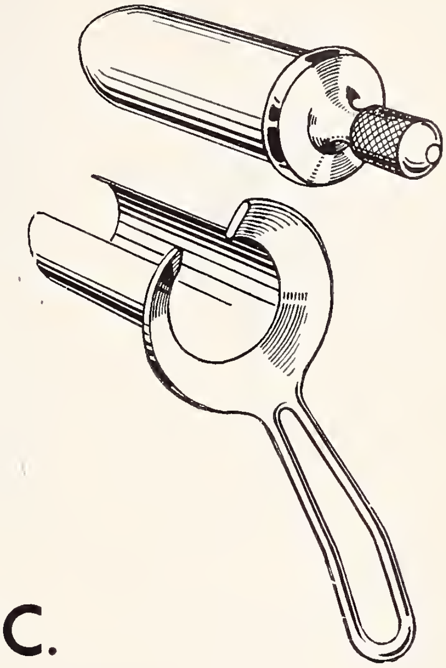

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From The Literature
- Bubert and Cook, Bulletin of School of Medicine, Univ. of Maryland, Vol. 32, pp. 175-190, 1948.
- Paul and Montgomery, J. Iowa State Med. Soc., June, 1948.
- Krantz, Holbert, Iwamoto and Carr, J.A.Ph.A., Vol. 36, pp. 248-250, 1947.
- New and Non-official Remedies, 1950, p. 285.

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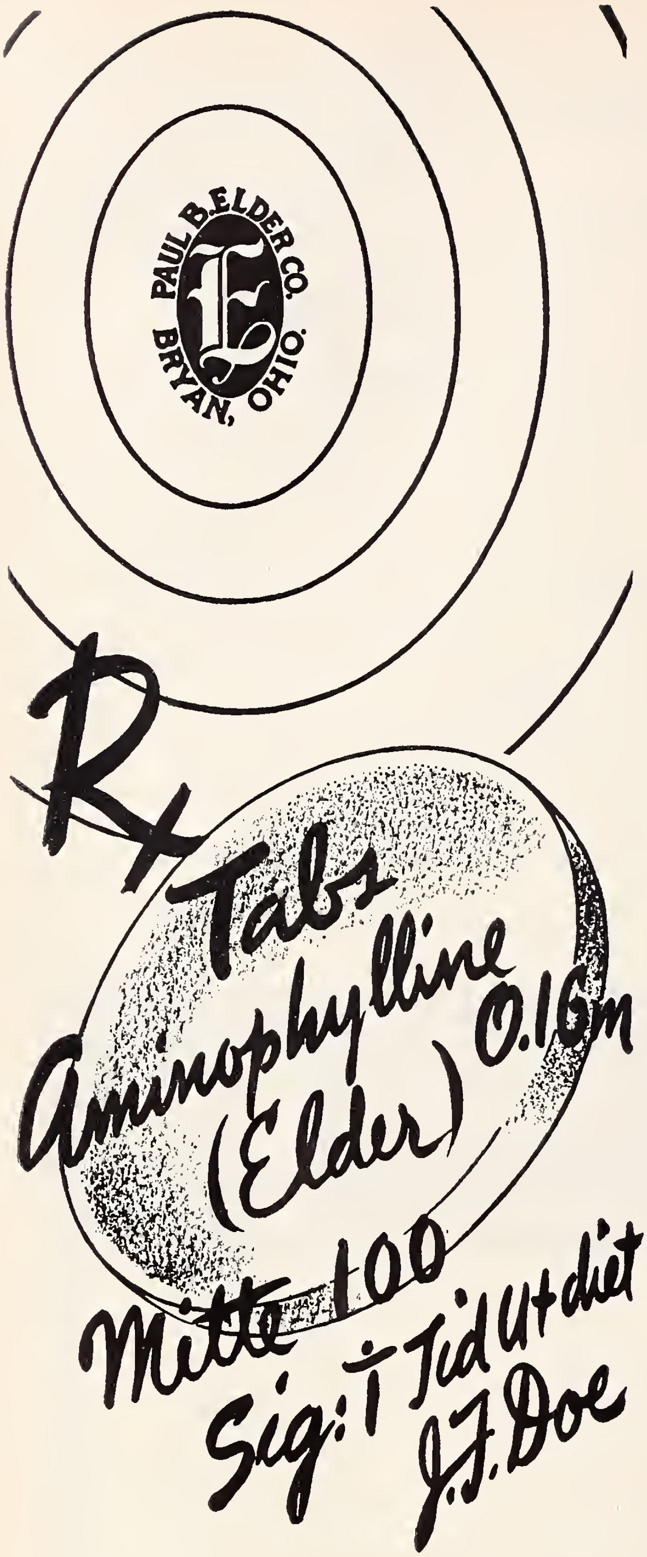

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MINNESOTA SOCIETY OF MEDICAL TECHNOLOGISTS

(Continued from Page 496)

M. Jeanette Stephens of the University of Minnesota Hospitals will discuss and demonstrate "Routine Coagulation Tests—Their Technique, Limitations and Clinical Implications."

All interested are cordially invited to attend.

RAMSEY COUNTY TUBERCULOSIS AND HEALTH ASSOCIATION

At the annual meeting of the Ramsey County Tuberculosis and Health Association (formerly known as the Ramsey County Health Association), held April 25, 1951, at the Athletic Club in Saint Paul, the following officers were elected:

President—Edward A. Knapp
First Vice President—J. Richards Aurelius, M.D.
Second Vice President—John B. Burke
Treasurer—P. A. F. Smith
Assistant Treasurer—J. A. Caritzel
Executive Secretary—Ruth P. Junkin
Secretary—E. A. Meyerding, M.D.

The most impressive report of the activities of the year 1950 was the discovery of fifty-six unsuspected cases of tuberculosis as a result of the free chest x-ray survey that year. These were individuals who, had not their condition been detected, would now be disseminating the disease and would in some cases have escaped early detection, so important for the treatment of the patient.

SAINT PAUL SURGICAL SOCIETY

At a meeting of the Saint Paul Surgical Society at the Minnesota Club on March 21, Dr. Lyle Hay and Dr. Clarence Dennis were guest speakers. Dr. Hay, chief surgeon at Minneapolis Veterans Hospital, discussed "Perforated Duodenal Ulcers." Dr. Dennis, professor of surgery at the University of Minnesota, spoke on "Ulcerative Colitis."

WASHINGTON COUNTY SOCIETY

The regular meeting of the Washington County Medical Society was held in Stillwater on April 10. Guest speakers at the meeting were Dr. Vernon Smith and Dr. Albert F. Hayes, both of Saint Paul. Dr. Smith spoke on "Thrombo-embolic Phenomena," and Dr. Hayes discussed "Rupture of the Uterus."

The scientific program was followed by a presentation of motion pictures by Dr. Smith. The color pictures, showing a hunter's paradise as well as skiing adventures, were accompanied by rapid-fire comments by Dr. Smith.

In April the county society finished the publishing in county newspapers of the "educational posters" supplied by the Minnesota State Medical Association. The posters appeared 127 times.

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In Memoriam

FERDINAND G. BENN

Dr. F. G. Benn, formerly of Minneapolis, died at LaMesa, California, March 12, 1951.

Dr. Benn was born at Amenia, North Dakota, September 14, 1878. His preliminary education was obtained at Castleton, North Dakota. He obtained a B.S. degree from The North Dakota College, Fargo, in 1898 and his M.D. degree from Hamline in 1903. Some twenty-one months of postgraduate study was taken in Chicago, New York and Vienna.

Dr. Benn practiced at Kulm, North Dakota, from 1903 to 1907 and again from 1908 to 1913. Since 1913 he had practiced in Minneapolis until he moved to LaMesa three years ago.

He was a member of the Hennepin County Medical Society, the Minnesota State Medical Association and the American Medical Association. He was a member of the staff of St. Barnabas Hospital and of Joppa lodge.

Dr. Benn is survived by a daughter, Mrs. Dorothy Schultz, Hopkins, and a son, Howard.

EDWIN JOHN GERALD BLOEMENDAAL

Doctor Bloemendaal of Lake Park, Minnesota, died early in April, 1951.

He was born in Orange City, Iowa, December 4, 1910. His preliminary education was obtained at Northwestern Classical Academy and Northwestern Junior College at Orange City, Iowa. He obtained his M.D. degree from the Iowa School of Medicine, Iowa City, Iowa, in 1936. He interned at Providence Hospital, Detroit, Michigan, and took postgraduate work at the University of Minnesota for six months. He served in the United States army for nearly nine years.

FELIX CHARLES DOLDER

Dr. F. C. Dolder, well-known practitioner of Eyota, Minnesota, died March 19, 1951 after a brief illness. He was seventy-six years of age.

Dr. Dolder was born in Chicago, March 30, 1874. He received his early schooling at Chicago English High School at Manual Training High School and at Armour Institute in Chicago. His medical training was obtained at Northwestern University from which he was graduated in 1903. He took additional training at the Postgraduate School in Chicago.

Dr. Dolder practiced at Joliet, Illinois, and at Hastings and St. Charles in Minnesota before locating at Eyota thirty-seven years ago.

On September 17, 1908, he was married to Emma Mary Luhmann at Dover. His wife passed away September 18, 1944. A son and daughter survive him.

Dr. Dolder was a member of the Olmsted-Houston-Fillmore-Dodge County Medical Society, the Minnesota State Medical Association and the American Medical Association. He was president of the Eyota Commercial Club in 1941 and a former mayor of Eyota. During more recent years he was well known for the elaborate Christmas decorations which he sponsored, in particular the customary huge Christmas bell which hung over the street near his home.

JOSEPH E. HEARD

Dr. Joseph E. Heard, former fellow in surgery of the Mayo Foundation, died at Shreveport, Louisiana, on January 19, 1951.

Dr. Heard was born at Brownsville, Tennessee, on December 15, 1888. He received the degree of M.D. in 1914 from Tulane University in New Orleans, and was an intern at the Charity Hospital in New Orleans from June, 1914, to June, 1916. He entered the Mayo Foundation as a fellow in surgery in July, 1916, and left the Mayo Foundation in July, 1922. During that time he served as a captain in the medical corps of the A.E.F. in France from August, 1917, to July, 1919. For four months he practiced at the Holt Clinic in Fort Smith, Arkansas, after which time he went to Shreveport, Louisiana, to practice surgery where he remained until the time of his death.

Doctor Heard was a diplomate of the American Board of Surgery, a fellow of the American College of Surgeons, a member of the American Medical Association, and a major in the Medical Reserve Corps of the United States Army.

CARL A. SCHERER

Dr. Carl A. Scherer of Duluth died February 12, 1951, at the age of sixty-eight.

Dr. Scherer was born in New Ulm, February 23, 1881. He attended Pillsbury Academy before graduating from the University of Michigan Medical School in 1907.

He practiced in Bolivia from 1909-12 and studied in Munich and Zurich in 1912-13. He was instructor in communicable diseases and diseases of children at the University of Minnesota from 1914 to 1916.

Dr. Scherer was associated with the Duluth Clinic for a number of years and was a former president of the St. Louis County Medical Society. He was health officer of St. Louis County from 1934 to 1944.

Death occurred at Maryville, California, where he was serving as county health officer.

GEORGE JACOB SCHOTTLER

Dr. George J. Schottler, a practitioner in the Dexter community for fifty-four years, died February 15, 1951. He was eighty years of age and had practiced for fifty-four years.

Doctor Schottler was born at Rockfield, Wisconsin, November 5, 1870. After attending district schools in

(Continued on Page 502)

North Shore Health Resort

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Head Pain as a Diagnostic Lead

Frequently the presence of head pain is overlooked. The physician learns of it only if he has made an effort to elicit the information. Since the etiology of the pain is the basis of rational management, the patient should be warned against taking medication before diagnosis is made.

Friedman[1] deplores the tendency to call any chronic recurring headache migraine. Careful history-taking and full physical and neurological examinations are essential for accurate diagnosis. A good starting point is a description of the headache — its character, laterality, frequency and intensity.[2]

The following chart gives briefly the primary diagnostic leads and treatment for the most common types of headache.

Etiology of Headache	Primary Diagnostic Data	Primary Therapy
Inflammatory e.g., Meningitis Abscess	Inflammation of intracranial structures; fever; leucocytosis; bacteriologic diag.	Specific: sulfonamides and antibiotics. Symptomatic: analgesics.
Tumor	Pain varies as spinal press. changes; skull X-ray.	Specific: surgery. Symptomatic, analgesics &/or hypnotics.
Sinusitis	Sinus congestion and infection; cloudy X-ray.	Specific: antibiotics and drainage. Symptomatic: analgesics.
Hypertensive	Hypertension present but pain not related to b.p. level; Dihydroergotamine. relieves pain.	General hypertension therapy; sedation. Symptomatic: analgesics.
Migraine & other vascular headaches	Headache: recurrent, intense, throbbing. No organic causation; migraine in family; patient: energetic, perfectionist. Visual prodromata; g-i. upset during headache.	To abort attack: oral ergotamine plus caffeine. General: adjustment to minimize nervous stress.

Data here tabulated is from: Wolf, G., Jr.,[3] and Friedman, A. P.[4]

Cecil[5] ranks vascular headaches, e.g., migraine and tension headaches, as the most commonly encountered of all. Because of their functional nature and usual recurrence at frequent intervals, they present a long-term therapeutic problem.

Therapy is conducted along two lines:

1) Psychotherapy to reduce the frequency of attacks. This consists mainly of advice on emotional adjustment to stressful situations and guidance toward a good balance between work and relaxation.

2) Treatment of the distressing attack to prevent the usual period of incapacitation. Many investigators have reported that ergotamine preparations are effective for relief of the acute migraine attack in 80% of cases.[1,6] The drug is given immediately when an attack is approaching and dosage adjusted to the needs of the individual.

1. Friedman, A. P. and von Storch, T.: 99th A.M.A. Session, June 1950. 2. Butler, S. and Hall, F.: M. Clin. N. Amer., p. 1439 (Sept.) 1949. 3. Wolf, G., Jr.: M. J. *54*:25, 1951. 4. Friedman, A. P. and Conn, H. T.: Current Therapy, 1950, p. 563; Saunders Co., Phila. 5. Cecil, R. L.: A Textbook of Medicine, ed. 7, 1948, p. 1483; Saunders Co., Phila. 6. Horton, B. et al: Staff Meet. of Mayo Clinic *20*:241, 1945.

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GEORGE JACOB SCHOTTLER

(Continued from Page 500)

Wisconsin, he took a teacher's course in the North Indiana Normal School at Valparaiso, Indiana, graduating in 1892 with a B.S. degree and then attended Rush Medical School where he obtained his M.D. degree in 1896. He began practice at Dexter the same year. He took postgraduate work at Chicago Postgraduate School at a later date.

On March 27, 1947, Doctor Schottler shared honors with Dr. O. H. Hegge and the late Dr. A. E. Henslin at a dinner held in Austin in their honor. All three had each given more than fifty years of service to his community. Five years ago the county he served gave a party sponsored by the Dexter American Legion Auxiliary on the occasion of his seventy-fifth birthday.

Dr. Schottler was a member of the Mower County Medical Society, the Minnesota State Medical Association and the American Medical Association. He is survived by his wife; three sons, Dr. Max Schottler of Minneapolis, Kenneth of Duluth and Jesse of White Plains, New York; and a daughter, Mrs. Kathryn Remington of Chicago.

GLADYS TROMMALD SHERRILL

Dr. Gladys Trommald of Brainerd, who in 1950 married C. H. Sherrill, passed away March 1, 1951. She was forty-seven years of age.

Doctor Trommald was born July 21, 1903 in Brainerd, Minnesota. She was a graduate of Washington High School at Brainerd and obtained her M.D. degree from the University of Minnesota Medical School in 1930. She served in Northville, Michigan, and in Jacksonville, Illinois, as a psychiatrist before acting as assistant superintendent at the Anoka State Hospital.

Doctor Trommald is survived by her husband and one brother, Al Trommald, both of Brainerd.

ALBERT BERRY STUART

Dr. Albert B. Stuart, a physician of Cloquet, Minnesota, for the past thirty-two years, passed away March 21, 1951. He was sixty-eight years of age.

Dr. Stuart was born at Chariton, Iowa, September 1, 1882. He was graduated from the School of Medicine at the University of Nebraska in 1904. He served as an extern at the W.C.A. Hospital in Council Bluffs, Iowa.

Upon his return from service in the army overseas, he was associated with the Debarkation Hospital in New York and also served on the staff of Bellevue Hospital in New York before coming to Cloquet.

Dr. Stuart was a surgeon for the Northern Pacific Railway, served on the Cloquet Fire Commission, the Library Board and the Civic Center Board. He belonged to the local Masonic lodge and the Association for the Advancement of Science. He was a member of the St. Louis County Medical Society, the Minnesota State Medical Association and the American Medical Association.

He is survived by his wife, a son, Donald M. Stuart, of Indianapolis and a brother, Fred, of Joliet, Illinois.

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Of General Interest

Dr. Elmer L. Henderson, president of the AMA, recently completed a tour of the United States military bases and operations in the Pacific area. He visited hospitals, talked with hundreds of Army, Navy and Air Force physicians, conferred with General MacArthur and flew over the battle lines in Korea. General MacArthur told Dr. Henderson that American wounded in the Korean war are getting the best medical care ever supplied soldiers anywhere.

* * *

Dr. John S. Siegel, Virginia, returned early in April from a three-week trip to California, during which he attended a meeting of the American Academy of General Practice at San Francisco.

* * *

A compilation of thirty scientific papers presented last fall at a University of Minnesota symposium on hypertension in honor of three Minnesota medical scientists has been published by the University of Minnesota Press.

The book, "Hypertension: A Symposium," was edited by **Dr. Elexious T. Bell**, professor emeritus of pathology at the University and one of the three men honored at the conference last fall. Tribute was also paid to **Dr. Benjamin J. Clawson**, professor emeritus of pathology, and **Dr. George E. Fahr**, professor emeritus of medicine.

Contributors to the book include physicians from every section of the United States and from three foreign countries. The book summarizes existing knowledge of hypertension, its causes and its treatment, and points the way to future research in the field.

* * *

Dr. Ludvig R. Lima and **Dr. William A. Owens** moved their offices into new quarters in the Arneson Drug Store Building in Montevideo during the middle of March. The new quarters for the clinic include offices for four physicians, examination rooms, waiting room, library, laboratory and a room for minor surgical operations.

* * *

Dr. Arthur M. Hall, Minneapolis, has accepted a call to serve as a missionary to South Africa for the Evangelical Lutheran Church.

* * *

Dr. Charles W. Rucker, Rochester, presented a talk on his trip to Guatemala at a meeting of the International Relations Club of Rochester Senior High School on April 4. His talk was illustrated with slides.

* * *

Among Minnesota physicians who registered at the fourteenth annual meeting of the **New Orleans Graduate Medical Assembly**, which was held March 5 to 8, were the following: Dr. D. L. Donovan, Albert Lea; Dr. H. C. Johnson, Thief River Falls; Dr. Francis McCarten, Stillwater; Dr. J. B. Nixon, Crosby; Dr. George S. Baker and Dr. Arlie R. Barnes, Rochester; Dr. Thomas J. Edward, Dr. James R. Ralph and Dr. Ramby C. Rasmussen, Saint Paul; Dr. Jay C. Davis, Dr. Russell Heim, Dr. John L. McKelvey, Dr. William H. Rucker, Dr. A. N. Russeth, and Dr. Albert V. Stoesser, all of Minneapolis.

* * *

Dr. B. T. Bottolfson, Moorhead, has moved his offices to the second story of the newly constructed Bottolfson Building in Moorhead. For the past five years his offices have been located in a Fargo building.

* * *

Dr. William O. McLane, formerly associated with the Bratrud Clinic at Thief River Falls, has taken over the practice of the late Dr. J. Lehman in Brainerd.

* * *

Dr. Richard L. Varco, associate professor of surgery at the University of Minnesota, was the principal speaker at a meeting of the Grand Forks, North Dakota, District Medical Society on March 21.

* * *

"Detection and Prevention of Cancer and Heart Disease" was the theme of a meeting held by the Twin Cities Lodge, American Federation of Government Employes, in Saint Paul on April 12. On the program **Dr. John F. Briggs**, Saint Paul, past president of the Minnesota Heart Association, spoke on "New Hope for Hearts."

* * *

Dr. Bernard S. Nauth, formerly of Winona, has opened offices for the practice of medicine in Bagley. Before moving to Bagley, he was associated with the Winona Clinic from 1945 to 1950.

* * *

Dr. John F. Pohl, Minneapolis, left for Europe during the first week of April to begin a three-month fellowship under the World Health Organization. He will study treatment, care, management and employment of crippled people in England, Germany, France and Austria.

* * *

Dr. D. L. Johnson, Little Falls, returned on April 3 from a two-week trip to California, where he attended a meeting of the American Academy of General Practice in San Francisco.

* * *

"An Atlas for the Clinical Use of the MMPI," a handbook for case histories for users of the Minnesota Multiphasic Personality Inventory, was published during the first week of April by the University of Minnesota Press. Authors of the volume are Professors Starke R. Hathaway and Paul E. Meehl. The book contains 968 case summaries, documenting a representative cross section of clinical experience with the MMPI, a test devised by Dr. Hathaway and the late Dr. J. C. McKinley.

Official Registration Figures

MINNESOTA STATE MEDICAL ASSOCIATION'S ANNUAL CONVENTION

Rochester, Minnesota **April 30-May 2, 1951**

Doctors	1,659
Nurses, Dietitians, Technicians, Social Workers and Medical Secretaries	460
Scientific Exhibitors	48
Commercial Exhibitors	325
Women's Auxiliary	367
Guests (Miscellaneous)	216
Total	3,075

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Dr. and Mrs. F. L. Kling, Milaca, were named "Tourists of the Week" at Weslaco, Texas, while vacationing there late this last winter. For the past seven years they have spent part of the winter at the Weslaco Trailer Park, living in their trailer home. Dr. Kling has practiced in Milaca as a general physician and surgeon for forty years.

* * *

It was announced on March 22 that the partnership of **Dr. H. H. Holm** and **Dr. John W. Gridley** in Glencoe would be dissolved on April 1. Dr. Gridley, who became associated with Dr. Holm in 1946, planned to spend two months in postgraduate training and then, on June 1, become a partner in the Medical Arts Clinic at Watertown, South Dakota.

Dr. George N. Aagaard, assistant professor of medicine at the University of Minnesota, was principal speaker at a meeting of the Lutheran Student Sunday Evening Club at the University's Coffman Memorial Union on April 15. He spoke on the topic, "Are We Accentuating the Positive?"

* * *

A **"Doctors Exchange,"** designed to provide better medical service to the community, has been established in St. Cloud by the local physicians. All after-hour calls to physicians are centralized in one switchboard, which is open twenty-four hours a day. The exchange operator is informed at all times as to where physicians can be located, and if a specific physician is not immediately available, the exchange can suggest another who is convenient to the area from which the call originates.

* * *

Dr. J. C. Lannin, of Mabel, suffered a dislocated clavicle on March 27 when his car rolled backwards as he was alighting from it and severely twisted his shoulder.

* * *

Dr. H. Herman Young, Rochester, was a speaker at the accident prevention clinic held in Mankato on April 12. Dr. Young described his work in determining the causes of farm accidents and planning prevention programs.

* * *

Dr. C. W. Wasmund has returned to Red Wing and has become associated again with the Interstate Clinic. For the past eighteen months he has been working in the ophthalmology departments of several New York hospitals.

* * *

Dr. Christopher Graham, well-known Rochester physician, celebrated his ninety-fifth birthday in Rochester on April 3.

* * *

Dr. Charles W. Rogers, Winona, attended a meeting of the American Academy of Pediatrics in Cincinnati, Ohio, during the last week of March.

* * *

Dr. Robert A. Huseby, cancer research specialist at the University of Minnesota, discussed modern developments in cancer control at a one-day conference on cancer at St. Luke's Hospital, Duluth, on March 31. Sponsored by the Duluth District, American Cancer Society, the meeting was open to the public and featured discussions by a number of authorities on cancer.

* * *

Dr. Robert W. Hollenhorst, Rochester, participated in a spring graduate course at Gill Memorial Eye, Ear and Throat Hospital at Roanoke, Virginia, during the first week of April. He presented four papers entitled "Cortisone in the Treatment of Eye Disease," "The Eye in Hypertensive Cardiovascular Disease," "The Eye Manifestations of the Diffuse Collagenous Diseases" and "Optic Neuritis."

* * *

Dr. E. Mendelssohn Jones, chief of the surgical staff of Ancker Hospital, Saint Paul, was honored on April 21 at a testimonial dinner given by the members of the surgical staff at the Minnesota Club. Surgical residents and their wives were guests. Dr. Jones has been a member of the staff of the hospital since 1918 and has been chief of the surgical section for several years.

* * *

Dr. James M. Wagoner has opened offices for the practice of medicine in Harmony. A graduate of Indiana University School of Medicine, he served in the Army during World War II and later practiced in Indiana for two and one-half years.

* * *

Dr. and Mrs. Robert E. Hansen and their children, Tommy and Jeanne, have moved from Hibbing to

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Rochester, where Dr. Hansen began a fellowship at the Mayo Foundation on April 1.

* * *

Dr. Nathan K. Jensen has announced the opening of offices at 1935 Medical Arts Building, Minneapolis, for the practice of general and thoracic surgery.

* * *

The report of a committee on chronic and convalescent care in Saint Paul on March 21 indicated that the city needs three fifty-bed chronic-care hospital units and an additional public nursing home with 350 to 400 beds.

The committee, whose report was approved by the Saint Paul Area Health Council, was headed by **Dr. Ralph L. Olsen.** The committee estimated that there are 4,230 chronically ill persons in Saint Paul in a year, that 69 per cent of them are over sixty-five years of age, and that two-thirds of them need hospital or nursing-home care.

* * *

Dr. John W. Kirklin, Rochester, spoke on "Special Considerations in the Surgery of Infants and Children" at a meeting of the Jackson County Medical Society in Kansas City, Missouri, on March 27.

* * *

Dr. H. E. Coulter and **Dr. W. J. Hruza** moved their offices into their newly constructed office building in Madelia on March 24.

* * *

Dr. George W. Bagby moved from Cannon Falls to Rochester during the first week of April. He has begun a fellowship at the Mayo Foundation.

Speaking at a meeting of the Saint Paul Association of Officemen on March 27, **Dr. Gordon R. Kamman,** Saint Paul, discussed the Minnesota mental health program.

* * *

Among Minnesota physicians attending the annual meeting of the American Academy of General Practice in San Francisco late in March was **Dr. Harry B. Clark** of St. Cloud.

* * *

Minnesota's eighty-four rural counties spent more than $49,000 in **Christmas Seal** money last year to help finance the search for cases of tuberculosis, the Minnesota Public Health Association reported on March 26. Counties offering free chest x-rays to all residents last year included Goodhue, Mower, Kandiyohi, Lake of the Woods, Koochiching, Dakota, Rice, Grant, Waseca, Sherburne, Pope, Wabasha and Fillmore.

* * *

Dr. Kenneth D. Devine and **Dr. John R. Hill** were speakers at a meeting of the Chippewa County Medical Society in Chippewa Falls, Wisconsin, on April 10. Dr. Devine spoke on "Injuries of the Face and Facial Bones," and Dr. Hill discussed "Abscesses and Fistulas of the Anorectal Region."

* * *

Physicians of Fairmont and the surrounding area, all staff members of the Community Hospital, began a new policy in March of holding monthly staff conferences to correlate policies and keep informed on new therapeutic developments. Chief-of-staff for this year is Dr. W. H. Rowe of Fairmont.

BLUE CROSS AND BLUE SHIELD NEWS

Minnesota Blue Shield enrollment at the close of 1950 had risen from the 1949 total of 260,501 to 411,733. The 1950 Blue Shield payments on medical claims totaled $2,249,032.00 as compared to the 1949 total of $1,156,231.00. Nationally, Blue Shield covers over 18,000,000 people, Blue Cross over 40,000,000.

In view of the adjusted payments for some items in the schedule of payments to doctors, which were adopted during the latter part of 1949, and increased incidence, it was anticipated that the ratio of surgical-medical service expense to total earned income would be considerably greater than for the year, 1949, however, the percentage of surgical-medical service expense to total earned income for 1950 was 76.3 per cent compared with 72.8 per cent for 1949, or only a 3.5 per cent increase.

According to the latest report on all Blue Shield plans, as of September 30, 1950 these plans showed that an average of 80.94 per cent of income was used for medical and/or surgical expenses, 12.79 per cent was used for operating expenses, and 6.27 per cent for net income for reserves. The continued co-operation between Minnesota Blue Cross and Blue Shield has benefited both plans resulting in increased enrollment, decreased operating expenses, and in meeting the needs of the public who for the most part consider hospital and doctor bills as one item.

The present allowance of $25.00 for tonsillectomies performed on children under 13 years of age, has been increased effective May 1, 1951, to $30.00 for children who are eligible under the contract. This increase was based upon a study and recommendation by the Medical Advisory Committee, and was approved by the Board of Directors of Minnesota Medical Service, Inc., on March 28, 1951.

Last year for the first time we offered Blue Shield and Blue Cross contracts to individuals not eligible to enroll through groups. The underwriting of these individuals is more hazardous than group underwriting. Experience so far has been satisfactory. Continued studies are being made to determine whether or not individuals may be enrolled more often than under the present method.

The third non-group campaign for Blue Cross and Blue Shield opened on April 1 and closed April 21. To publicize the campaign, advertisements were placed in three metropolitan newspapers and other newspapers in the State. Radio spot announcements by Cedric Adams also helped to promote the non-group program. These advertisements and spot announcements are part of a promotional campaign planned for 1951. The total program includes 22 newspaper advertisements, and 20-second radio announcements by Cedric Adams for a period of 26 weeks, six nights a week, beginning April 2.

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BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical Libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

Books Received for Review

IMMUNOLOGY. Third Edition. Noble Pierce Sherwood, Ph.D., M.D., F.A.C.P. Professor of Bacteriology, University of Kansas, and Pathologist to the Lawrence Memorial Hospital, Lawrence, Kansas. 731 pages. Illus. Price $8.00, cloth. St. Louis: C. V. Mosby Co., 1951.

HANDBOOK OF PEDIATRIC MEDICAL EMERGENCIES. Adolph G. DeSanctis, M.D., Professor of Pediatrics and Chairman of the Department of Pediatrics, Postgraduate Medical School, New York University-Bellevue Medical Center, Director of Pediatrics, University Hospital, New York University-Bellevue Medical Center, Director of Pediatrics, Gouverneur Hospital, New York City; and Charles Varga, M.D., Instructor in Pediatrics, Postgraduate Medical School, New York University-Bellevue Medical Center, Assistant Attending Pediatrician, University Hospital, New York University-Bellevue Medical Center, Assistant Visiting Pediatrician, Gouverner Hospital, New York City. 284 pages. Illus. Price $5.00, cloth. St. Louis: C. V. Mosby Co., 1951.

CHRONIC ULCERATIVE COLITIS. J. Arnold Bargen, M.D. Division of Medicine, Mayo Clinic, Rochester, Minnesota. 62 pages. Illus. Price $2.00, flexible binding. Springfield, Illinois: Charles C Thomas, 1951.

HYPERTENSION—A Symposium held at the University of Minnesota on September 18, 19 and 20, 1950, in honor of Elexious T. Bell, M.D., Benjamin J. Clawson, M.D., and George E. Fahr, M.D. Edited by E. T. Bell, M.D. 573 pages. Illus. Price $7.50, cloth. Minneapolis: Colwell Press, 1951.

SOME CONTEMPORARY THINKING ABOUT THE EXCEPTIONAL CHILD: Proceedings of a Special Conference on Education and the Exceptional Child of the Child Research Clinic of the Woods Schools, November, 1949. Langhorne, Pa.: Woods Schools, 1949. Reprints free on request.

This excellent pamphlet contains the record of the proceedings of a special conference on feebleminded, palsied, and epileptic children, as well as certain other specially handicapped children. It is concerned particularly with broad problems of management and possible community action in handling these conditions. For this reason it is of particular interest to this state in our attempts to improve our care of these conditions. It is brief, concentrated, and thorough in its coverage of these conditions.

MULTIPLE SCLEROSIS AND THE DEMYELINATING DISEASES: Proceedings of the Association for Research in Nervous and Mental Diseases, Dec. 10 and 11, 1948, New York. (Research Publication v. 28). 675 pages, illus. Price $12.00. Baltimore: Williams & Wilkins, 1950.

The Association for Research in Nervous and Mental Diseases has published its second volume on Multiple

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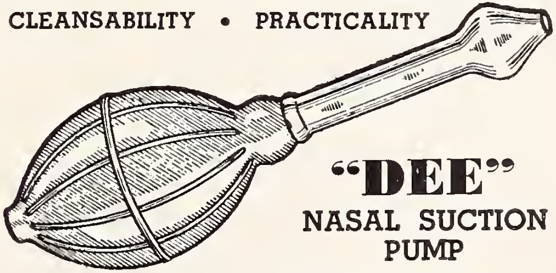
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Sclerosis and the Demyelinating Diseases. This, the twenty-eighth volume in a series of research publications, is a compilation and discussion of what is at present known about the demyelinating diseases. Over a quarter of a century has elapsed since multiple sclerosis was the subject of discussion at the annual meeting of the Association. In 1921, the Association first published the proceedings on multiple sclerosis in the second volume of the research publications.

A total of sixty-eight contributors representing all aspects of the demyelinating diseases have collaborated on their respective interest and knowledge in this disease. This volume brings to the clinician the latest in diagnosis, in treatment, and in probable etiology of multiple sclerosis, a neurologic disease familiar to all practitioners. The book is divided into eight major sections as follows: Part I.—Multiple Sclerosis, Historical Retrospect; Part II.—Ecology of Multiple Sclerosis; Part III.—Etiology of the Demyelinating Diseases; Part IV.—Blood Flow in Multiple Sclerosis; Part V.—Anatomic and Chemical Aspects of Multiple Sclerosis; Part VI.—Pathologic Aspects of the Demyelinating Diseases; Part VII.—Symptoms and Signs, Clinical Course and Diagnosis of Multiple Sclerosis; and Part VIII.—Current Treatment of Multiple Sclerosis.

The authors emphasize that the diagnosis of multiple sclerosis is not too difficult to make if one remains constantly aware of the fact that the crux of the diagnosis is the multiplicity or scattering of findings that defy localization to any single part of the central nervous system. It is also emphasized by the contributors that the diagnosis of multiple sclerosis is often made too glibly and surgical lesions that would account for the neurologic deficit are by-passed. Once the diagnosis of multiple sclerosis is made, investigation ceases to the detriment of the patient. Practically every practicing neurologist can recall a case wherein the diagnosis of multiple sclerosis was made and at a later date a brain or spinal cord tumor was removed. The chapter on the diagnosis of multiple sclerosis by Dr. Foster Kennedy emphasizes this point of the masquerade of multiple sclerosis.

This book will prove to be a most excellent reference to all who deal with neurologic disorders.

Z. R. M.

CORONARY ARTERY DISEASE. By Ernest P. Boas, M.D., Associate Physician, Mount Sinai Hospital, New York City, and Norman F. Boas, M.D. 399 pages. Illus. Price, $6.00. Chicago: The Year Book Publishers, Inc., 1949.

This monograph is a timely and valuable addition to cardiac literature. The chapters on physiology, anatomy and pathology are an introduction that the busy practitioner will skim over hurriedly. The clinical portion will provoke much thought.

The author wisely considers the myocardial infarction as but an episode in the course of coronary heart diseases. However, it so often is such a major factor that a further discussion of the ultimate prognosis after myocardial infarction would have been valuable.

The discussion of the relation of activity and trauma to coronary disease is particularly interesting. The author presents good evidence in support of his thesis that many myocardial infarctions are caused by occupational factors.

Anyone who sees heart patients will find much of value in this book.

David M. Craig, M.D.

VILLON, UN MAUVAIS GARÇON. Dr. Pierre Lôo. 119 pages. Price 350 frs., Paris: Vigot Freres, 23 rue de l'École de Medicine, 1950.

Here is another book about Villon, the "bad boy" among the poets. Hundreds of writers have discussed his "Petit Testament," his "Grand Testament," his Ballades" and other poems. Practically all acknowledge his genius, but there is not the same unanimity regarding his character. This attractive brochure is a psychological and medico-legal study of the self-confessed rascal.

Nearly all we know of Villon's life is set down in the frank and open revelations found in his verses. He was born in 1431. His father died when he was very young. His mother, pious, but poverty stricken, entrusted his education to a rather indulgent priest, Guillaume de Villon, chaplain of St. Benoit de Bétourné. The youngster played many tricks on his guardian and associated at night with all the bad boys in the neighborhood, which was just outside of Paris. With funds provided by the priest, he matriculated at the Sorbonne, where he acquired a smattering of classical knowledge. Eventually, he was made a "Master of Arts" and was licensed as a

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"clerk." Meanwhile, he had lived the night life of many Paris students of the day, gambling, drinking and making boon companions, of doubtful reputation, of both sexes. He was often without funds and in poor health. Dr Lôo does not believe he had tuberculosis. Returned to St. Benoit, he became involved in various robberies and even in a homicide which may have been in self defense.

His verses, sad and pessimistic as many of them are, seem still to be regarded as very beautiful, and the poet himself as worthy of affection. Rabelais, Daudier and Swinburne loved him, emphasizing his virtues and minimizing his faults. Robert Louis Stevenson was less lenient.

Doctor Lôo takes a realistic view of the man, and attributes most of his acknowledged faults to the times and the environment. He concludes that his evident mental disease was not a psychosis but a psychoneurotic state. He had a brilliant intellect and no lack of emotions but not even an attenuated sense of moral responsibility. He was a "déséquilibré," an unbalanced personality. With a Christian background, a belief in a merciful God and a love for France, he still was powerless to act accordingly. Doctor Lôo raises the question, "Is not perhaps a great poet more useful to the world than an honest man?"

Arthur T. Laird, M.D.

A DICTIONARY OF THE FUNGI. G. C. Ainsworth, B.Sc., Ph.D., University College, Exeter, Devon; G. R. Bisby, M.A., Ph.D., Commonwealth Mycological Institute, Kew, Surrey. 447 pages. Illus. Price $3.00, cloth. Kew, Surrey. The Commonwealth Mycological Institute, 1950.

Though titled a dictionary, this volume takes on a broader responsibility than a mere definition of mycological terms. The dictionary proper lists alphabetically the names of the various classes, orders, families and genera of fungi found throughout the world; also descriptive terms, as well as a number of helpful tables and more extended discussions of certain subjects of which the following are typical: Agaricaceae, antibiotics, bacteria, classification, collection and preservation of fungi, history of mycology, etc. Unfortunately for the physician or other casual inquirer in the realm of fungi, the data listed under the average term (the name of the genus, for example), are so condensed and terse as to be somewhat baffling until the system of reference is ferreted out piece by piece. For the true mycologist (to which rarefied genus the reviewer decidedly does not belong), the terseness may well be an advantage rather than a disadvantage.

While a key to the families of fungi is appended, also a systematic arrangement of the genera of Myxothallophyta (slime thallophytes) and Eumycetes (fungi), no attempt is made to list individual species of fungi, numbering some 37,500. Neither is any key given for identification of species of fungi—an endeavor which of itself would require a volume much larger than the present one.

It is obvious that the book is written for the mycological student, the scientist, rather than the hobbyist, the amateur collector of mushrooms or the chance wanderer among the fungi. For the professional inquirer, it is a scholarly work and should be an excellent reference.

Reno W. Backus, M.D.

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The fifth edition of *The Practice of Medicine* is a large and cumbersome book. Only from a material aspect, however, as the reading is clear and certainly not cumbersome. The new advances in medicine, as in metabolism, the antibiotics, and chemotherapy, are included in the volume in a very readable manner. The section on psychosomatic medicine is especially interesting and useful to the physician who deals in internal medicine.

As stated in a review of the previous edition, the color plates used by the various contributors are outstanding in their teaching value.

In general, I would highly recommend this book. It should make up one of the units in every doctor's library.

Joseph M. Ryan, M.D.

PRACTICAL POINTS IN ALLERGY

(Continued from Page 445)

stitute tank type vacuum sweepers for the "beater" type.) Patients with chronic respiratory infection, nasal allergy, or bronchial asthma should be cautioned to keep sleeping room windows closed in inclement weather.

4. Emotional problems.
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Summary

1. Allergic patients may be encountered in any practice, regardless of our individual interests in medicine. We, as physicians, should be prepared with a basic plan of procedure when such individuals enter our office. Several treatment plans which have been helpful in this allergy clinic are presented.

2. A thorough and accurate history is the most important means we have of arriving at a correct analysis of such problems. Protein tests are helpful, but their importance should not be overemphasized.

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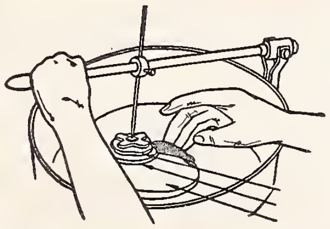

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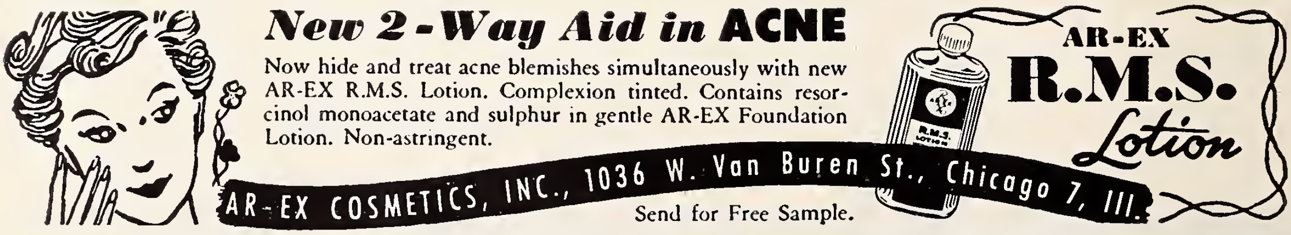
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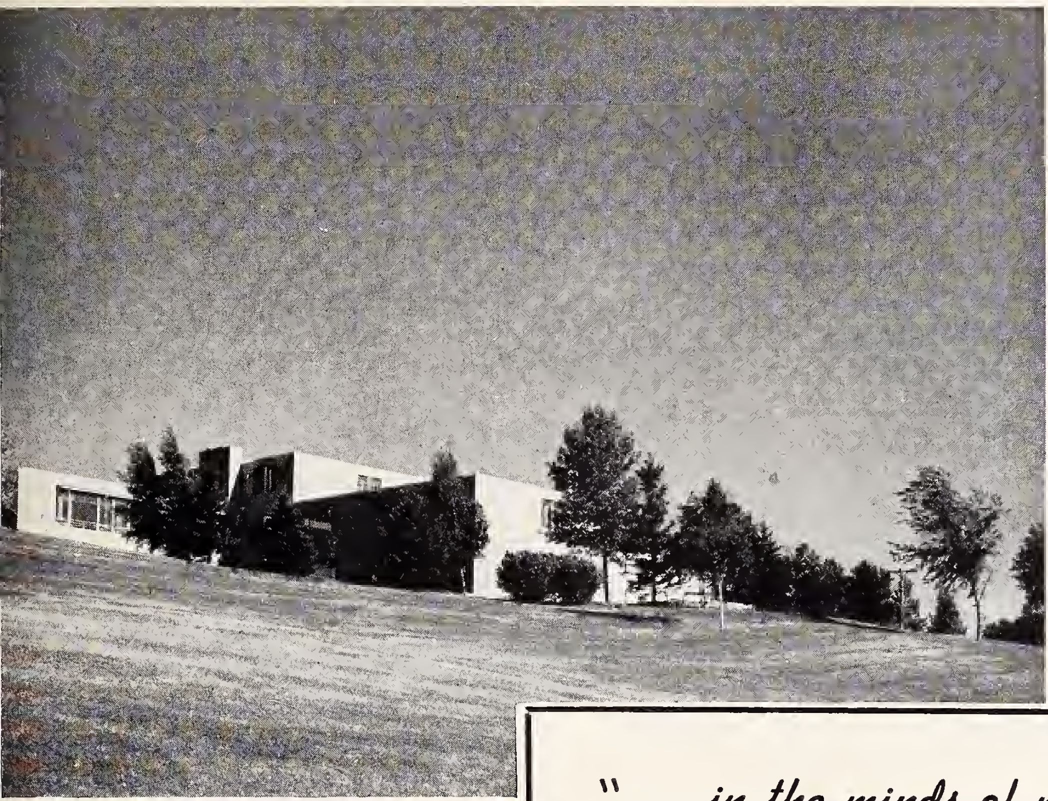

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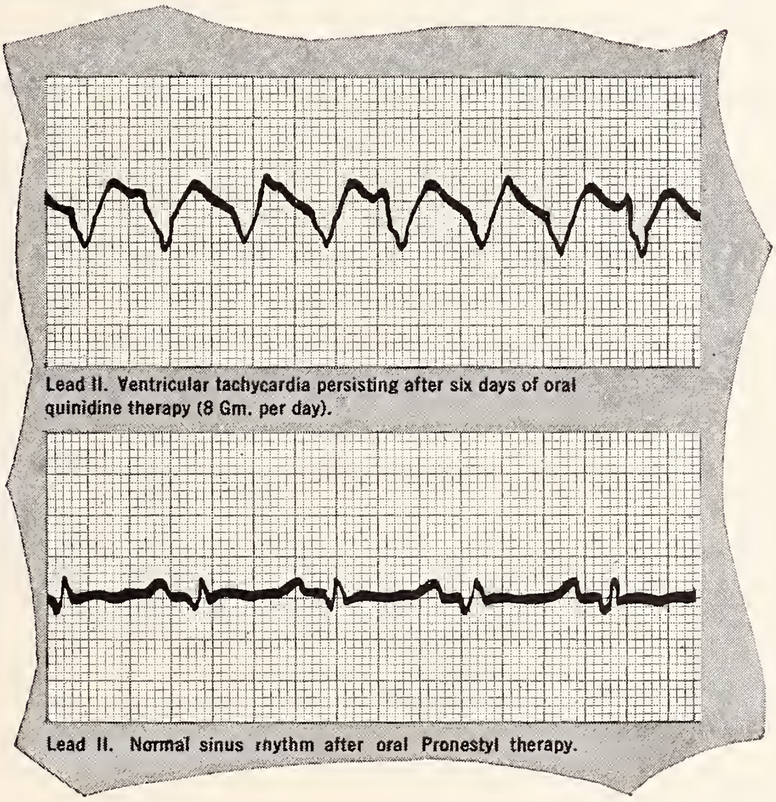

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1. Douglas, R. G.; Ball, T. L., and Davis, I. F.: California Med. 73:463 (Dec.) 1950.
2. Pratt, P. T.: Nebraska State M. J. 35:294 (Sept.) 1950.

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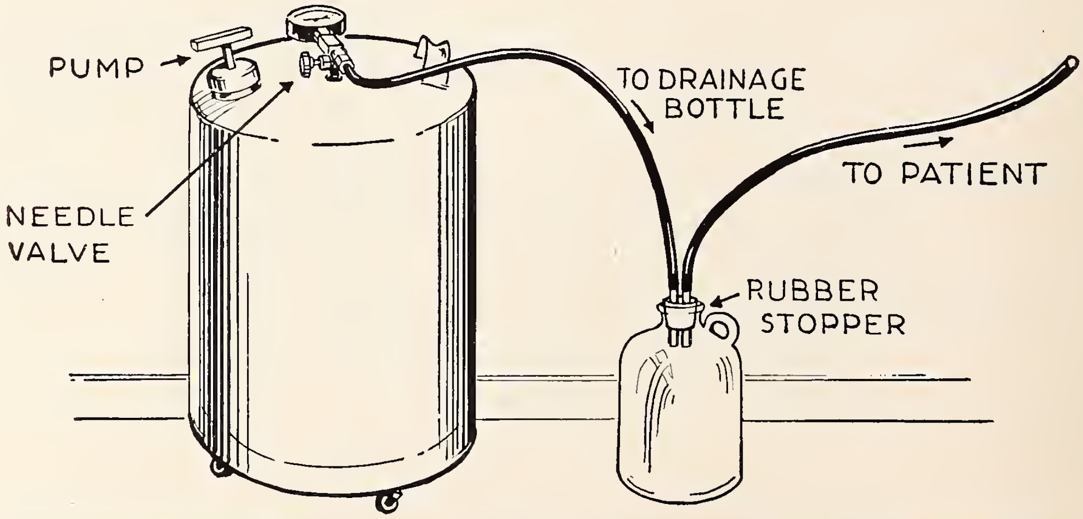

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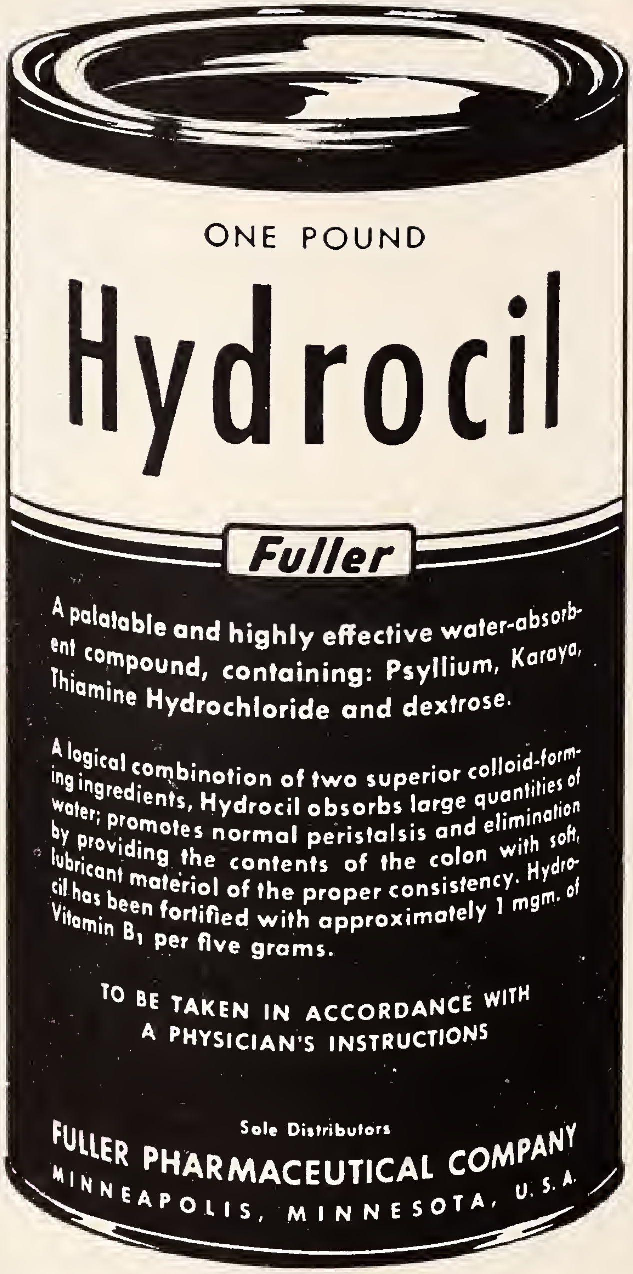

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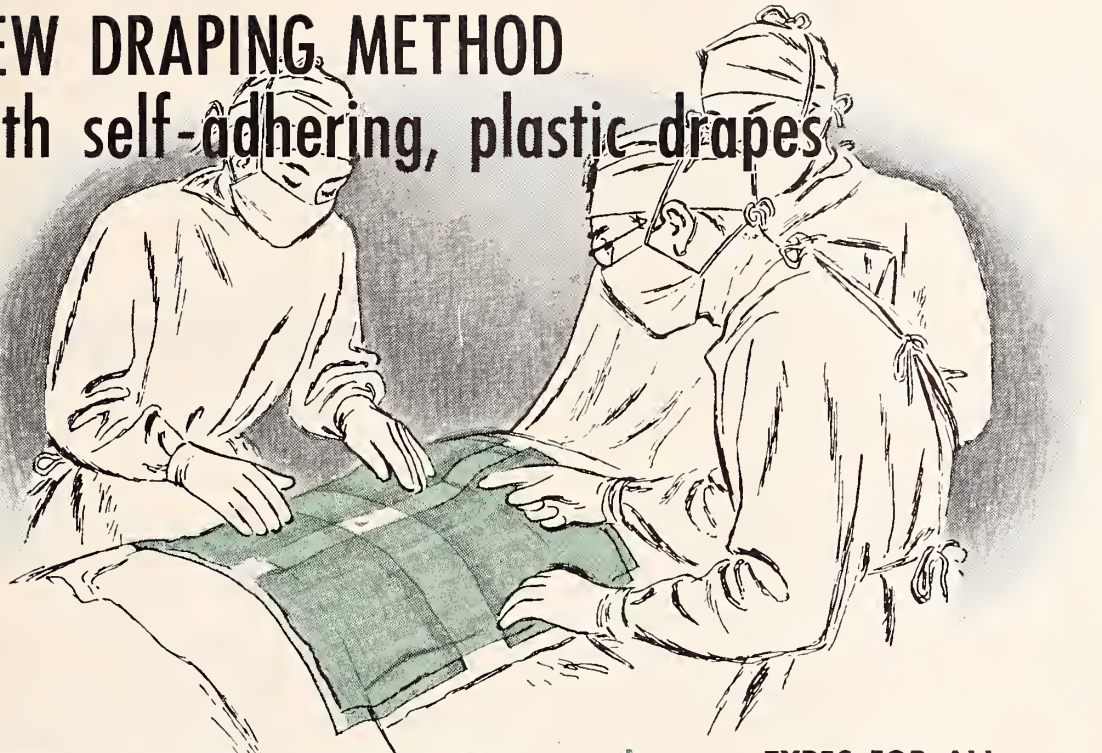

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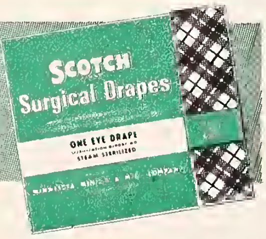

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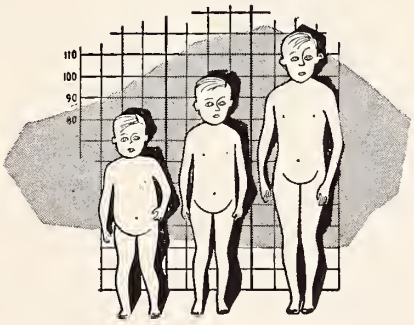

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1. Clark, Le M.: The Vaginal Diaphragm. St. Louis, C. V. Mosby Company, 1938; p. 43.
2. Dickinson, R. L.: Techniques of Conception Control. Baltimore, Williams & Wilkins Company, 1950; p. 17.

Unretouched photomicrograph of the dome (enlarged 10 diameters) and the rim (inset) of a "RAMSES" Flexible Cushioned Diaphrogm.

Unretouched photomicrograph of the dome (enlarged 10 diameters) and the rim (inset) of a conventional-type diaphragm.

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Harding, F. E.: West. J. Surg. Obst. & Gynec. 52:31 (Jan.) 1944

"All patients (53) described a sense of well-being" following "Premarin" therapy for menopausal symptoms.

Neustaedter, T.: Am. J. Obst. & Gynec. 46:530 (Oct.) 1943.

"It ('Premarin') gives to the patient a feeling of well-being."

Glass, S. J., and Rosenblum, G.: J. Clin. Endocrinol. 3:95 (Feb.) 1943

"General tonic effects were noteworthy and the greatest percentage of patients who expressed clear-cut preferences for any drug designated 'Premarin.'"

Perloff, W. H.: Am. J. Obst. & Gynec. 58:684 (Oct.) 1949.

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Minnesota Medicine

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

Volume 34 **June, 1951** **Number 6**

COMBINATIONS OF ANTIBIOTICS IN THE TREATMENT OF INFECTIOUS DISEASES

WILLIAM E. WELLMAN, M.D.
Rochester, Minnesota

THE synergistic and antagonistic effects of one drug on another have been a subject of investigation and study for many years. With the advent of the antibiotics, similar investigation was undertaken. This paper concerns itself with the synergistic and antagonistic effects of combinations of the various antibiotics in common use today: penicillin, dihydrostreptomycin, aureomycin, chloramphenicol and terramycin.

Although combinations of penicillin and dihydrostreptomycin had been used more or less empirically by clinicians, Klein and Kimmelman in 1947 published data involving *in vitro* studies which demonstrated a synergistic effect between these two drugs. They found that, in combination, these two substances left a residuum of viable resistant bacteria. However, these remaining bacteria were unable to multiply, the development of resistant forms thus being controlled. That this effect was indeed synergistic rather than merely additive was clearly demonstrated by Nichols in 1948. In the same year Spicer and Blitz found that although penicillin is bactericidal, it leaves a residuum of viable organisms which are destroyed when dihydrostreptomycin is used in combination with penicillin. Robbins,[14] and Robbins and Tompsett,[15] published two reports in 1949 in which they found a synergistic action of these two drugs for enterococci and Streptococcus viridans. In the same year Heilman showed that the most effective method of treating brucellosis in mice was with a combination of aureomycin and dihydrostreptomycin.

In 1950 Jawetz and his colleagues[1,8,10] found that combinations of penicillin and dihydrostreptomycin are synergistic because they increase the bactericidal rate. They also demonstrated an antagonism between penicillin and aureomycin or chloramphenicol. In other words, penicillin alone was more effective than when combined with either aureomycin or chloramphenicol. It had been established by Hobby and associates that penicillin is most effective when bacteria are multiplying actively. This being so, Jawetz and his co-workers have postulated that aureomycin and chloramphenicol are antagonistic to penicillin because they are bacteriostatic, thus inhibiting bacterial multiplication. These same authors found that dihydrostreptomycin paired with aureomycin and chloramphenicol, and aureomycin paired with chloramphenicol, showed no enhancing or antagonistic effect. Jawetz and Speck, studying streptococcal infections in mice, found that 20 per cent of the mice died after administration of penicillin or chloramphenicol alone, whereas 60 per cent died after administration of combinations of chloramphenicol and penicillin. Hunter,[7] working with bacteria *in vitro,* confirmed the antagonistic effects of combinations of penicillin and aureomycin. He further noted that the combination of aureomycin and dihydrostreptomycin was effective against certain bacteria.

Herrell, Heilman and I presented data concerning the development of strains of Escherichia coli and Aerobacter aerogenes resistant to terramycin, aureomycin, chloramphenicol and dihydro-

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From the Division of Medicine, Mayo Clinic, Rochester, Minnesota.

Read at the annual meeting of the Minnesota State Medical Association, Rochester, Minnesota, April 30, 1951.

streptomycin. As shown in Table I, strains made resistant to terramycin, to aureomycin and to chloramphenicol regularly showed an increased resistance to all three of these antibiotics but not to dihydrostreptomycin. Strains made resistant to dihydrostreptomycin did not exhibit an increased resistance to the other three antibiotics. Not infrequently the induction of resistance to terramycin, aureomycin or chloramphenicol resulted in an increase in sensitivity to dihydrostreptomycin. Conversely, an increase in resistance to dihydrostreptomycin sometimes was accompanied by an increase in sensitivity to terramycin, aureomycin or chloramphenicol.

TABLE I. INDUCED RESISTANCE TO TERRAMYCIN*

Organism and Strain	Made Resistant to:	Sensitivity in Micrograms per Milliliter			
		Terramycin	Aureomycin	Chloramphenicol	Streptomycin
Escherichia coli 687	0	3.12	6.25	6.25	12.5
	Terramycin	100	50	100	6.25
Aerobacter aerogenes 1,155	0	3.12	3.12	6.25	6.25
	Terramycin	50	50	200	6.25
Streptococcus faecalis 2,323	0	1.56	0.78	12.5	50
	Terramycin	12.5	6.25	12.5	50
Escherichia coli 2,300	0	1.56	3.12	12.5	6.25
	Aureomycin	100	100	100	3.12
Aerobacter aerogenes 2,319	0	1.56	3.12	6.25	3.12
	Aureomycin	100	50	200	0.78
Escherichia coli 994	0	1.56	3.12	12.5	6.25
	Chloramphenicol	50	25	200	6.25
Aerobacter aerogenes 1,155	0	3.12	3.12	6.25	6.25
	Chloramphenicol	6.25	12.5	200	3.12
Escherichia coli 1,120	0	3.12	3.12	12.5	12.5
	Streptomycin	1.56	1.56	6.25	200
Aerobacter aerogenes 1,158	0	1.56	1.56	3.12	12.5
	Streptomycin	1.56	0.78	1.56	200

*From Herrell, W. E.; Heilman, F. R., and Wellman, W. E.: Some bacteriologic, pharmacologic, and clinical observations on terramycin. Ann. New York Acad. Sc., 53:448-458 (Sept. 15) 1950.

A few strains of Streptococcus faecalis and Micrococcus pyogenes have been made resistant to terramycin or to aureomycin. With these organisms the development of resistance to one of the drugs has caused a substantial increase in resistance to the other, but not to chloramphenicol or to dihydrostreptomycin.

I have reviewed these laboratory reports in an attempt to acquaint you with the facts supporting the clinical use of combinations of the various antibiotics. At present, data concerning the clinical use of combination therapy are still somewhat limited. There are, however, a few diseases in which the use of combined therapy seems justified.

The first disease falling in this category is brucellosis. In 1950 Herrell and Barber reported data on thirty-five patients in whom brucellosis was treated with a combination of aureomycin and dihydrostreptomycin. Twenty-five of these patients had culturally proved brucellosis. In ten there was unmistakable evidence of brucellosis but no positive cultures were obtained. These thirty-five patients were all treated with a combination of aureomycin and dihydrostreptomycin and were followed, from three to nineteen months, with only one symptomatic relapse and no bacteriologic relapses. The dosage schedule was as follows: Patients with systemic or bacteremic brucellosis were given 3 gm. of aureomycin and 2 gm. of dihydrostreptomycin daily for twelve to fourteen days, while patients with localized lesions including those of the urinary tract, the skeletal system or the lymph nodes received 3 gm. of aureomycin and 1 gm. of dihydrostreptomycin daily for twenty-eight days. Aureomycin was administered in doses of 750 mg. every six hours; and 1 or 0.5 gm. of dihydrostreptomycin, depending on the duration of treatment, was given in the morning and evening. That this method of treatment is extremely satisfactory is evident from the fact that, of these thirty-five patients, all recovered and there were no bacteriologic relapses. It is my opinion that to date this is the method of choice in the treatment of brucellosis.

Combined therapy has also been found to be of value in the treatment of subacute bacterial endocarditis. The usual patient with endocarditis due to the various groups of streptococci responds well to penicillin alone. However, there are about 3 to 10 per cent of these patients in whom the infection is caused by a highly resistant organism. These resistant organisms are classed as enterococci, of which Streptococcus faecalis is one of the commonest. In 1947 Hunter[6] treated one patient who had subacute bacterial endocarditis due to Streptococcus faecalis with a combination of penicillin and dihydrostreptomycin. That this patient recovered was unusual, since very rarely had penicillin alone been successful.

However, in 1949, Robbins and Tompsett[15] reported data on six patients with enterococcal bacteremia, five of whom had subacute bacterial endocarditis. Two of these patients received treatment only terminally, but four completed a course of from four to eight weeks and recovered. These four patients were followed from six to twelve months and none relapsed. The same authors[16] in March, 1951, reported the results of combinations of penicillin and dihydrostreptomycin in nine patients with enterococcal endocarditis. Two patients received only a short course of therapy before death and were not considered as having had adequate therapeutic trials. Of the remaining seven patients, five recovered and two died. The recommended dosage schedule is 6,000,000 units of penicillin and 2 gm. of dihydrostreptomycin daily for twenty-eight to forty-two days. Five hundred thousand units of crystalline penicillin were given intramuscularly every two hours together with 0.5 gm. of dihydrostreptomycin four times daily.

Loewe and his colleagues also in March, 1951, reported data on four patients with enterococcal endocarditis who received both penicillin and dihydrostreptomycin. Two of these recovered and two died. The treatment period was from two to three weeks, and these patients received from 5,000,000 to 20,000,000 units of penicillin daily together with 1 to 2 gm. of dihydrostreptomycin. These authors recommended 10,000,000 units of penicillin daily given by the intravenous method. In their opinion dihydrostreptomycin should be added to the treatment only if penicillin alone fails to control the infection.

It is my opinion that at present the treatment of choice in enterococcal subacute bacterial endocarditis is a combination of penicillin and dihydrostreptomycin. The optimal dose of these two substances remains to be determined. I am also convinced that, when one is dealing with subacute bacterial endocarditis due to an unknown organism, combinations of these two drugs should be used.

Three other diseases which deserve mention in this regard are bacteremia, peritonitis and meningitis. When the organism causing these infections is known, one can usually determine the antibiotic of choice with little difficulty. However, if the organism producing these infections is unknown, the recommended treatment consists of combinations of aureomycin or terramycin with dihydrostreptomycin. Aureomycin and terramycin are preferable to penicillin, since they have a wider antibacterial spectrum. In the treatment of meningitis it is well to remember that terramycin does not diffuse into the cerebrospinal fluid. The suggested dose is 3 gm. of aureomycin or terramycin daily combined with 2 gm. of dihydrostreptomycin. If treatment is to be given for more than two weeks, the daily dose of dihydrostreptomycin should be 1 gm. Further clinical trials are necessary before final statements can be made concerning the optimal dose and the combinations of choice.

Conclusions

The data concerning combined therapy are confusing and in some cases contradictory. Furthermore, in many instances the clinical significance of the laboratory data is yet to be established. However, a few facts of significance seem clear.

First, a definite synergism between penicillin and dihydrostreptomycin has been established. The reason for this synergism is still in question. One group of investigators feels that the residuum of viable bacteria left by penicillin is destroyed by dihydrostreptomycin, while another group is of the opinion that dihydrostreptomycin added to penicillin controls the development of resistant forms by inhibiting their ability to multiply. Another hypothesis explaining this synergism is based on the fact that combinations of these drugs substantially increase the bactericidal rate.

Second, there appears to be an antagonistic effect between penicillin and aureomycin or chloramphenicol. In other words, penicillin is more effective alone than in combination with either aureomycin or chloramphenicol. This is thought to be due to the fact that aureomycin and chloramphenicol are bacteriostatic, thus inhibiting the multiplication of the bacteria. This slows the action of penicillin, which is known to be most effective against bacteria in the rapidly growing phase.

Third, certain bacteria made resistant to aureomycin, to terramycin and to chloramphenicol showed an increased resistance to all three of these antibiotics but not to dihydrostreptomycin. Bacteria made resistant to dihydrostreptomycin did not show an increased resistance to the other three antibiotics. These findings are consistent with the fact that combinations of aureomycin and dihydrostreptomycin are effective in the treatment of brucellosis. These facts suggest that combinations of aureomycin or terramycin with dihydrostreptomycin would be effective in the treatment of peritonitis, meningitis and bacteremia when the organism causing these infections is unknown.

Fourth, a combination of aureomycin and dihydrostreptomycin represents the treatment of choice in brucellosis.

Fifth, the recommended treatment in subacute bacterial endocarditis due to enterococci consists of a combination of penicillin and dihydrostreptomycin. This combination is also preferable when the etiologic agent is unknown.

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DDT INSECTICIDE SAFE IF WISELY USED

DDT, an essentially poisonous material, can be used with a wide margin of safety if it is wisely used, reports the Committee on Pesticides of the Council on Pharmacy and Chemistry of the American Medical Association in the current (March 10) *Journal of the AMA.*

DDT—in the form of powders, solutions, emulsions and aerosols—has been widely used in recent years to control plant and animal pests as well as disease-carrying insects with a great deal of success.

The committee, which recently reviewed literature and case reports on the substance, points out that the poisonous effect of DDT on living organisms decreases with the increase in complexity of the organism. Thus insects, a lower type of organism, are destroyed by the substance while human beings and the higher types of animals are "not likely" to be harmed.

Some human deaths, however, have been caused by DDT and therefore "certain precautions must be observed to guard against its potential toxic properties," they added.

A warning was given to farmers to be careful when applying DDT to food or fodder crops. DDT applied directly to the edible portions of a plant may result in poisoning. It should not be used on dairy cattle or ani-

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THE EFFECT OF CORTISONE IN GLOMERULONEPHRITIS AND THE NEPHROPATHY OF DISSEMINATED LUPUS ERYTHEMATOSUS

W. E. JACOBSON, M.D., B. I. HELLER, M.D., and J. F. HAMMARSTEN, M.D.
Minneapolis, Minnesota

ON the basis of theoretical considerations and in view of some encouraging preliminary reports, it was considered advisable to study carefully the effects of cortisone on renal function in patients with various types of renal disease. The data presented in this report are derived from the investigation of four patients in various phases of glomerulonephritis and two patients with the nephropathy of disseminated lupus erythematosus.

Results

The first patient was a thirty-year-old man with acute glomerulonephritis. The values for the renal plasma flow, glomerular filtration rate, filtration fraction, hematuria, albuminuria, and blood urea nitrogen are recorded in Table I. The control observations demonstrate abnormalities characteristic of this disease and include a marked reduction of the glomerular filtration rate, prominent hematuria and albuminuria, and an elevation of the blood urea nitrogen. This patient was given cortisone acetate, 200 mg. daily, for twenty-three days. During the period of hormone administration there was an increase in the renal plasma flow and a delayed increase in the rate of glomerular filtration. The degree of hematuria, albuminuria, and azotemia was not altered. After cortisone was discontinued, the renal plasma flow and glomerular filtration returned to values below the control levels and the other measurements remained essentially unchanged. Five months after the completion of this study the patient died of severe renal insufficiency. At the time of the autopsy the kidneys showed the findings of subacute glomerulonephritis.

TABLE I. CORTISONE IN ACUTE GLOMERULONEPHRITIS. PATIENT A.F.

	R.P.F.	G.F.	F.F.	Urine		Blood Urea Nitrogen (mg. %)
	ml. per min.		(%)	Red Cells	Albumin (gm./24 hr.)	
Control						
Week 1	511	44.4	11.5	4+	14.9	52.8
Treatment						
Week 1	563	35.3	6.3	4+	17.2	55.4
Week 2	612	31.2	5.2	4+	22.2	54.0
Week 3	693	49.7	7.2	4+	15.2	46.5
Week 4	651	48.2	7.4	4+	—	50.0
Post Treatment						
Week 1	363	38.5	10.6	4+	14.8	41.5
Week 2	423	32.5	7.6	4+	13.4	27.8

R.P.F.: renal plasma flow
G.F.: glomerular filtration rate
F.F.: filtration fraction
1+: 3 to 10 red blood cells per high power field
2+: 10 to 30 red blood cells per high power field
3+: 30 to 100 red blood cells per high power field
4+: more than 100 red blood cells per high power field

TABLE II. CORTISONE IN ACUTE GLOMERULONEPHRITIS. PATIENT M.K.

	R.P.F.	G.F.	F.F.	Urine		Blood Urea Nitrogen (mg. %)
	ml. per min.		(%)	Red Cells	Albumin (gm./24 hr.)	
Control						
Week 1	186	26.5	14.1	4+	0.65	27.5
Treatment						
Week 1	204	35.7	17.5	4+	0.79	26
Week 2	221	42.6	18.7	4+	0.37	23
Week 3	222	42.3	19.0	4+	0.53	22
Post Treatment						
Week 1	263	56.0	21.0	4+	0.41	23
Week 2	240	45.0	18.7	4+	0.57	22
Treatment						
Week 1	239	64.0	22.0	2+	0.30	22
Post Treatment						
Week 1	243	53.3	21.9	3+	0.57	23
Week 2	261	50.8	22.2	4+	0.30	22
Week 3	214	43.8	20.4	—	—	—

The second patient was a fifty-eight-year-old man who developed acute glomerulonephritis following an acute streptococcic pneumonia (Table II). At the time that the studies were initiated the patient was improving spontaneously. However, the control observations still revealed marked renal dysfunction, hematuria, albuminuria, and mild azotemia. This patient received 100 mg. cortisone daily for twenty-one days, and after a two-week period of observation, he was given a second course of cortisone, 200 mg. daily, for one week. During these studies there was a definite rise in both the renal plasma flow and the rate of glomerular filtration. Hematuria, albuminuria, and the blood urea nitrogen showed only minimal changes from the control levels. Six weeks after the second period of drug administration the routine urinalysis was negative except for a trace of albumin. The Addis count, however, still demonstrated hematuria and cylindruria.

The third patient (Table III) was a thirty-year-old man with subacute glomerulonephritis. The control observations in this patient revealed a normal renal plasma flow but a moderate reduction in the rate of glomerular filtration. There was moderate hematuria and moderately severe albuminuria. A slight elevation of the blood urea nitrogen was noted during the first week of control studies but this had returned to within normal limits prior to the use of cortisone. The patient was given 150 mg. cortisone daily for twenty-eight days. During the period of steroid administration the rate of glomerular filtration increased and approximated a nor-

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TABLE III. CORTISONE IN SUBACUTE GLOMERULONEPHRITIS. PATIENT L.L.

	R.P.F.	G.F.	F.F.	Urine		Blood Urea Nitrogen
	ml. per min.		(%)	Red Cells	Albumin (gm./24 hr.)	(mg. %)
Control						
Week 1	684	79.4	11.6	3+	7.4	22.5
Week 2	650	80.9	12.4	3+	5.5	16.4
Treatment						
Week 1	694	89.2	12.9	3+	8.7	18.5
Week 2	704	98.3	13.9	3+	7.9	20.7
Week 3	—	—	—	2+	7.1	18.5
Week 4	644	100.9	15.7	2+	6.5	16.0
Post Treatment						
Week 1	658	100.8	15.3	3+	4.6	16.7
Week 2	674	108.8	16.1	4+	6.4	15.0
	—	—	—		—	—
Week 5	597	75.3	12.6		—	—

TABLE IV. CORTISONE IN CHRONIC GLOMERULONEPHRITIS. PATIENT P.S.

	R.P.F.	G.F.	F.F.	Urine		Blood Urea Nitrogen
	ml. per min.		(%)	Red Cells	Albumin (gm./24 hr.)	(mg. %)
Control						
Week 1	344	63.0	18.4	3+	2.54	16
Treatment						
Week 1	318	53.0	16.7	4+	5.10	16
Week 2	439	63.0	14.8	4+	5.30	20
Week 3	394	57.0	14.4	4+	6.60	27
Post Treatment						
Week 1	446	73.0	16.3	4+	5.88	25
Week 2	394	61.0	15.5	4+	3.73	16
Treatment						
Week 1	384	68.0	17.5	3+	3.73	17
	419	64.0	15.3			
Post Treatment						
Week 1	439	67.8	15.4	4+	8.10	23
Week 2	356	56.2	15.8	3+	5.29	17
Week 3	—	—	—	2+	3.70	13

TABLE V. CORTISONE IN LUPUS ERYTHEMATOSUS. PATIENT D.O.

	R.P.F.	G.F.	F.F.	Urine		Blood Urea Nitrogen
	ml. per min.		(%)	Red Cells	Albumin (gm./24 hr.)	(mg. %)
Control						
Week 1	434	45.0	10.4	2+	0.59	23.7
Week 2	428	48.4	11.3	1+	0.45	20.0
Treatment						
Week 1	—	—	—	2+	0.73	18.7
Week 2	396	57.0	14.4	2+	0.60	19.3
Week 3	376	60.8	16.2	2+	1.10	19.5
Week 4	354	62.5	17.7	3+	2.50	17.7
Post Treatment						
Week 1	309	—	—	4+	4.45	13.3
Week 2	371	73.0	19.7	3+	4.25	13.5
Week 3	394	52.7	13.4	2+	3.53	16.5

TALBE VI. CORTISONE IN LUPUS ERYTHEMATOSUS. PATIENT R.J.

	R.P.F.	G.F.	F.F.	Urine		Blood Urea Nitrogen	Tmpah mg./min.
	ml. per min.		(%)	Red Cells	Albumin (gm./24 hr.)	(mg. %)	
Control							
Week 1	688	46.9	6.8	2+	9.0	43.5	
Week 2	777	42.3	5.4	3+	9.5	53.0	67.5
Treatment							
Week 1	—	—	—	3+	11.5	66.8	
Week 2	—	—	—	3+	11.4	66.0	
Week 3	572	27.9	4.9	4+	12.7	77.5	
Week 4	584	30.7	5.3	4+	12.8	65.0	30.8
Post Treatment							
Week 1	—	—	—	3+	—	—	
Week 2	493	28.7	5.8	4+	15.3	57.5	
Week 3	—	—	—	4+	19.0	48.0	

Tmpah = maximal tubular excretory capacity for para-aminohippurate.

mal value. This increase in filtration was maintained for two weeks after cessation of the hormone, but thereafter the rate returned to the control level. Hematuria, albuminuria, and the blood urea nitrogen were not significantly altered.

The fourth patient (Table IV) was a forty-one-year-old man with the nephrotic phase of chronic glomerulonephritis. Control observations revealed a reduction of both the renal plasma flow and the glomerular filtration rate. There was moderate hematuria and albuminuria, but no azotemia. He was given cortisone, 100 mg. daily, for twenty-one days. After a two-week interval he was given a second course of 200 mg. daily for nine days. There were minor elevations of the renal plasma flow but the glomerular filtration rate was not appreciably altered. Hematuria persisted and albuminuria actually increased. The blood urea nitrogen also rose during the period of hormone administration. In general all observations had returned to the control levels by the second or third week after discontinuance of the drug.

The fifth patient (Table V) was a twenty-eight-year-old woman with chronic disseminated lupus erythematosus. The control observations revealed a moderate reduction of the renal plasma flow but a proportionately greater reduction of the glomerular filtration rate. There was moderate hematuria and albuminuria and a slight elevation of the blood urea nitrogen. A total of 4.625 grams of cortisone was administered during a twenty-eight day period. The rate of glomerular filtration increased during the period of hormone administration but returned to the control level three weeks after the drug was discontinued. There was some increase in hematuria and a definite increase in albuminuria. There was a striking increase in the blood pressure during the third week of cortisone administration and a severe hypertension persisted for two weeks after the drug was stopped. At the time of hospital discharge the patient still had marked hematuria, albuminuria, and a persistent hypertension. Approximately three months later she was known to have expired in another hospital.

The sixth patient (Table VI) was a twenty-three-year-old man with subacute disseminated lupus erythematosus. The control observations revealed a normal renal plasma flow, a normal tubular excretory capacity for para-aminohippurate, but a marked reduction of the glomerular filtration rate. There was a moderate hematuria, severe albuminuria, and an elevated blood urea nitrogen. Cortisone was administered in a dose of 150 mg. a day for twenty-five days. Despite this there was a further decrease in the glomerular filtration rate and a fall in the renal plasma flow. As further evi-

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THE PRESENT STATUS OF BCG VACCINATION

E. FENGER, M.D.

Oak Terrace, Minnesota

ON July 12, 1950, the Public Health Service, Federal Security Agency, licensed the Research Foundation and the University of Illinois for the manufacture, exportation, importation, and the sale of BCG vaccine. This vaccine is now available commercially. I believe that this means that many of us may be called upon soon for advice as to BCG vaccination. I believe that we must either accept or reject this procedure in the control of tuberculosis.

I would, therefore, like to briefly discuss the present status of this controversial subject.

In 1908 Calmette and Guerin announced that they had developed a strain of bovine tubercle bacilli which was avirulent for cattle. In 1920 they reported that this BCG culture was harmless to man. Since that time millions of persons have been vaccinated with this product. During the past ten years, especially since the end of World War II, the use of BCG has increased tremendously. This is especially true in the Scandinavian countries and other countries of Europe, South America, China, and Japan. The World Health Organization, WHO, has been a very strong booster for vaccination throughout the war-ridden countries. Concerning Japan, it should be mentioned that most of their vaccination has been done with the dried vaccine. Brigadier General Sams reports that 31 million persons have received BCG immunization up to May of 1949 as a result of a tuberculosis control program inaugurated by the Supreme Command of the Allied Powers.

The joint enterprise is a co-operative effort between UNICEF and the Scandinavian Voluntary organizations on an international scale primarily with the objective of assisting national health authorities in the execution of mass BCG vaccination campaigns, and in introducing BCG recognition as one of the tools in their long-range tuberculosis control program. The joint enterprise has vaccinated millions.

Here in the United States we have been very slow in accepting this procedure. Our mortality and morbidity rates have been and are much lower than those of the other countries of the world. Our facilities for the diagnosis, care and treatment of the tuberculous are likewise better than those found throughout the world. Therefore, the necessity for mass vaccination in our country has not been present.

The fact that Dr. W. G. Workman, Chief, Laboratory of Biologic Control, National Institute of Health, has licensed BCG means, according to Dr. Robert Anderson, Chief, Division of Tuberculosis, U. S. Public Health Service, "that the vaccine produced by the licensed laboratory has been found safe by trial with animals, that it is free from contaminating substances, and that it will produce a satisfactory immediate reaction in animals and human beings when used within the prescribed time limit."

Endless controversies concerning the dangers and the effectiveness of BCG have been present in the United States for many years. The dangers of vaccination can now be considered nil. The effectiveness as an immunizing agent is still open for discussion. Failures of vaccination may be due to (1) quantitative conditions connected with the preparation of the vaccine, or (2) the lack of technique for differentiating between allergy and protective immunity. Dr. Rene J. Dubos states that it is almost certain that the immunity produced by the vaccine is the outcome of a limited but definite multiplication of the attenuated bacilli in the body of the animal undergoing immunization, chiefly in the regional lymph nodes. The degree of immunization probably reflects in a certain measure the extent of this multiplication. It is very likely, on the other hand, that the degree of multiplication depends in turn upon at least four independent factors, namely, (1) the number of living micro-organisms injected, (2) their physiological state, (3) level of attenuation (or virulence), (4) susceptibility of the immunized individual.

Another problem, not yet answered, is the length of protection. How often must we re-

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Dr. Fenger is Assistant Medical Director of Glen Lake Sanatorium, Oak Terrace, Minnesota.

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vaccinate? Dr. Tonderlung of Copenhagen states that immunity will last from four and one-half to five years. That is the usual time stated. But the studies have not been too well carried out. Many of these problems are now being studied in the several projects of the Public Health Service, including the duration of immunization, method of administration, effectiveness, and evaluation program. The U. S. Public Health Service at the present time has three studies in progress:

1. In 1947 they began vaccinating the Georgia school children. This study is still going on and will involve nearly 75,000 children.

2. The Indian study. This has now reached a total of 30,000.

3. The largest study project consists of a cooperation program launched last fall with the Department of Health of Puerto Rico. The entire school system is involved.

Much has been said as to the lack of controlled studies. I believe that Dr. R. R. Ferguson's studies in Canada have been well controlled. His study of nurses and employes in the general hospitals of Saskatchewan showed a decrease in the morbidity rate among the vaccinated in general hospitals 1 to 4 and in the Sanatorium group 1 to 5 of the incidence as compared with the previous five-year incidence before vaccination was inaugurated. His experience with the vaccination of the highly exposed Indians showed a decrease of 1 to 4 in the morbidity and mortality rates among the vaccinated as compared to the controls.

The Aronson and Palmer studies conducted among the American Indians are carefully controlled. The vaccination program began in 1936. An eleven-year follow-up shows 1,551 vaccinated, 1,457 controls. The morbidity rate was 27.8 in the controls and 11.1 in the vaccinated group. The tuberculosis mortality rate showed a difference favorable to the vaccinated of 0.4 and 3.5. There are many other studies that could be mentioned.

It might be of interest to look at the figures concerning the amount of BCG vaccine distributed here in our own country. We have three laboratories producing BCG vaccine. Dr. Joseph D. Aronson of the Henry Phipps Institute, Philadelphia, stated that with few exceptions the Institute does not provide BCG vaccine outside the State of Pennsylvania. It has, however, provided BCG vaccine to the United States Indian Service. From July 1, 1949, to January 28, 1950, 3,438 persons have been vaccinated in the State of Pennsylvania with this vaccine. During the first half year of 1950 another 1,600 were added. Dr. Konrad Birkhaug of the Health Department, State of New York, stated that the Health Department cannot provide BCG vaccine outside the State of New York except for a few specified United States Public Health Service projects. It has provided the Philippine Islands with 2,000 doses of vaccine weekly for thirty-eight weeks and the Puerto Rico project with 10,000 doses weekly for twenty-four weeks. During 1948 and 1949, 6,596 vaccinations were performed in the State of New York. In a letter received from Dr. Birkhaug in September of 1950, he stated that during the first eight months of this year 1,450 individuals were vaccinated in New York and 1,390 of these became tuberculin positive, or 96 per cent. He ends his letter with, "My general impression is that BCG vaccination is increasing rapidly in New York and is being used extensively for nurses, medical students, hospital personnel, children's clinics (Harlem, New York City, Albany, Buffalo, Syracuse), and in mental hygiene institutions. But, even so, this is only a small fraction of the vaccine that we are sending out of this state which has already been inocculated into more than one million individuals during the past eight months." Dr. Sol Rosenthal of the Tice Laboratory, Chicago, Illinois, reported that during one year, 1949-1950, the Tice Laboratories have provided BCG vaccine to 103 institutions. These include seventeen medical schools and forty-four schools of nursing. The recipients were located in sixteen states, two territories, and the District of Columbia. In 1950 Tice Laboratories shipped 179,000 doses, and during the first three months of 1951 they equaled that figure.

Very little vaccination has been done in Minnesota. At Glen Lake Sanatorium we have vaccinated more than 350 persons. We have been vaccinating our negative tuberculin reacting prospective employes, student nurses in some of the hospitals in Minneapolis, namely, Eitel, Northwestern, Abbott, and a few at St. Mary's, St. Andrew's, St. Joseph, and St. Barnabas. We have also vaccinated children in homes where ex-patients would be sent who occasionally have a positive gastric culture. At Nopeming Sanatorium, just outside of Duluth, over 270 vaccinations have been done, A small amount of vaccination has been done at the Veterans Administration Hospital in Minneapolis, and here at the Mayo Clinic.

At the present time I believe we should follow the American Trudeau Association's recommendation, namely, vaccination of the following more vulnerable groups, provided they do not react to adequate tuberculin tests:

1. Doctors, medical students, and nurses who are exposed to tuberculosis.
2. All hospital and laboratory personnel whose work exposes them to contact with the bacillus of tuberculosis.
3. Individuals who are unavoidably exposed to infectious tuberculosis in the home.
4. Patients and employes in a mental hospital, prison, and other custodial institutions in whom the incidence of tuberculosis is known to be high.
5. Children and certain adults considered to have inferior resistance and living in communites in which the tuberculous mortality rate is unusually high.

It is to be emphasized that BCG vaccination must not be regarded as a substitute for approved hygienic measures or for the public health practices designed to prevent or minimize the tuberculous infection and disease. Vaccination should be regarded as only one of the many procedures to be used in tuberculosis control program.

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THE EFFECT OF CORTISONE IN GLOMERULONEPHRITIS

(Continued from Page 542)

dence of the progressive renal dysfunction the Tm PAH decreased approximately 50 per cent. Hematuria, albuminuria, and azotemia increased. A severe hypertension also developed. During hormone administration there was a somewhat paradoxial rise in the serum potassium concentration and a fall in the serum sodium concentration. Six weeks after the completion of the studies the patient died of severe renal insufficiency and hyperpotassemia. Microscopic examination of the kidneys revealed lesions of subacute glomerulonephritis and the wire-loop capillaries of lupus erythmatosus. There was diffuse glomerular involvement and marked tubular atrophy.

Discussion

Analysis of the data that has been presented reveals that transient improvement in renal function, as measured by the renal plasma flow and glomerular filtration rate, may occur during the administration of cortisone. Hematuria and albuminuria, however, did not decrease, and in some instances actually increased. It is apparent that some of the observed changes in renal hemodynamics are due to spontaneous fluctuations in the disease process, but others seem to be associated with the cortisone administration. The mechanism by which these transient increases in renal function may be caused by this hormone is unknown. Two mechanisms which may be involved are as follows: (1) a direct effect of cortisone upon the glomerular capillary bed or the renal vasculature; (2) an indirect effect of cortisone mediated through an increased extra cellular fluid volume. It is extremely unlikely that this steroid has any primary effect upon the glomerular capillaries or the basic pathologic lesion. At least some of the observed changes are probably related to the alterations in the extracellular fluid volume.

Summary

Four patients in the various phases of glomerulonephritis and two patients with the nephropathy of dissenminated lupus erythematosus were studied during cortisone administration. Although transient changes in the renal hemodynamics were observed, hematuria and albuminuria did not decrease and, in some instances, actually increased. Cortisone had no demonstrable beneficial effect upon the basic pathologic process in the glomerular capillaries. In both patients with lupus erythematosus, severe hypertension was produced.

INFANT MORTALITY IN MINNESOTA, 1950

A. B. ROSENFIELD, M.D., M.P.H.
Minneapolis, Minnesota

EMERSON W. STOREY, B.S., M.S.
Saint Paul, Minnesota

DATA concerning certain medical problems associated with births have been collected routinely for many years by various state health departments. Since January 1, 1950, when revised birth certificates and stillbirth certificates were first used in Minnesota, certain information relating to prematurity, congenital malformations, and weeks of gestation, as well as birth weight, has become available for statistical study.

The observations presented in the present article are based on limited and, in some cases, incomplete data and, of course, cannot serve as a substitute for detailed clinical studies. However, even limited information on a large number of births should be helpful in determining the size and extent of the problem and in developing public health programs, which may lead, with the co-operation of the medical profession, to further reductions in infant mortality. In addition to summarizing the available data, the limitations and deficiences encountered will also be pointed out so that the need for accurate and complete information on the birth and stillbirth certificates will be understood by physicians. It is hoped that physicians will be gracious in furnishing diagnoses of congenital defects (which are not required on certificates) when such information is requested by the State Department of Health. The value of birth registration data in programs for reducing maternal and infant mortality will thus be considerably enhanced.

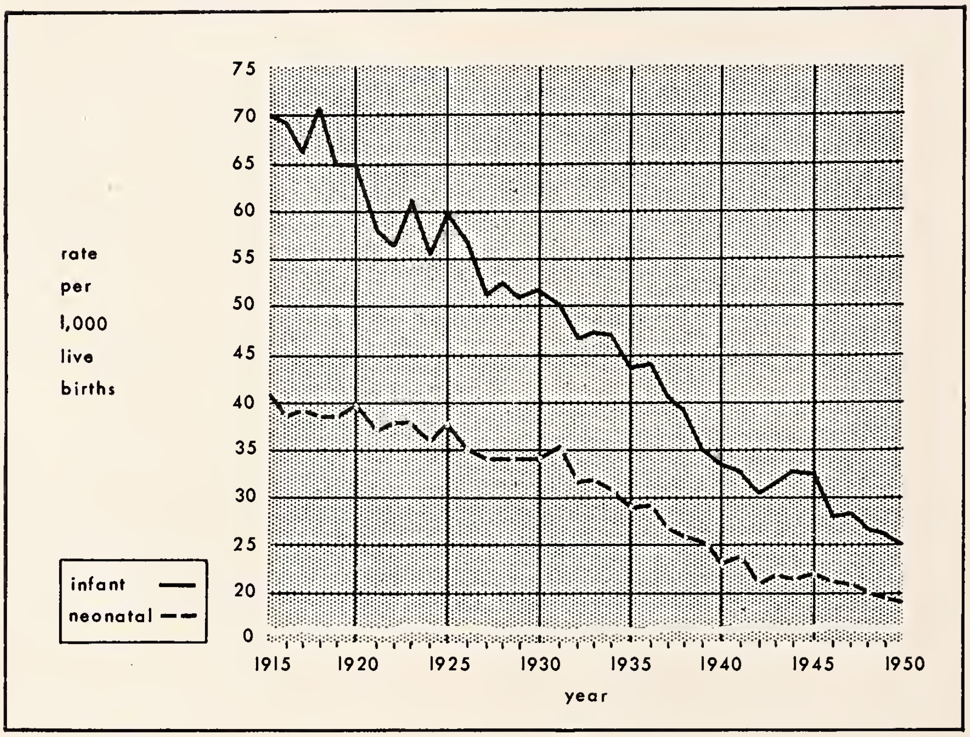

Fig. 1. Infant and neonatal death rates for Minnesota, 1915-1950.

Infant Mortality

There has been a continuing decrease in Minnesota in infant mortality, which reached a rate of 25.0 per 1,000 live births in 1950, a decrease of 64 per cent since 1915, when the rate was 70.1 (Fig. 1). This decrease in deaths was accompanied by an increase in live births to 75,337 and

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Dr. Rosenfield is Director, Division of Maternal and Child Health, Minnesota Department of Health.

Mr. Storey is Statistician, Division of Vital Statistics, Minnesota Department of Health.

a birth rate of 25.2 per 1,000 of population. Indians constitute about 0.5 per cent of the total state population (approximately 14,500). There were 599 Indian births and 26 infant deaths, with a mortality rate of 43.4 per 1,000 live births. This rate was 67 per cent higher than the state rate but it was a reduction of 22 per cent from the 1949 rate. Provisional statistics show 1,874 deaths of infants under one year. More deaths occur during the first year of life than during any other one-year period. As a matter of fact, there are almost as many deaths in infancy as there are in all of the next thirty-nine years. It should be noted that 98.3 per cent of all births in Minnesota during 1950 occurred in hospitals, and 99.8 per cent were attended by physicians. There is, therefore, no problem of home deliveries or nonmedical attendance.

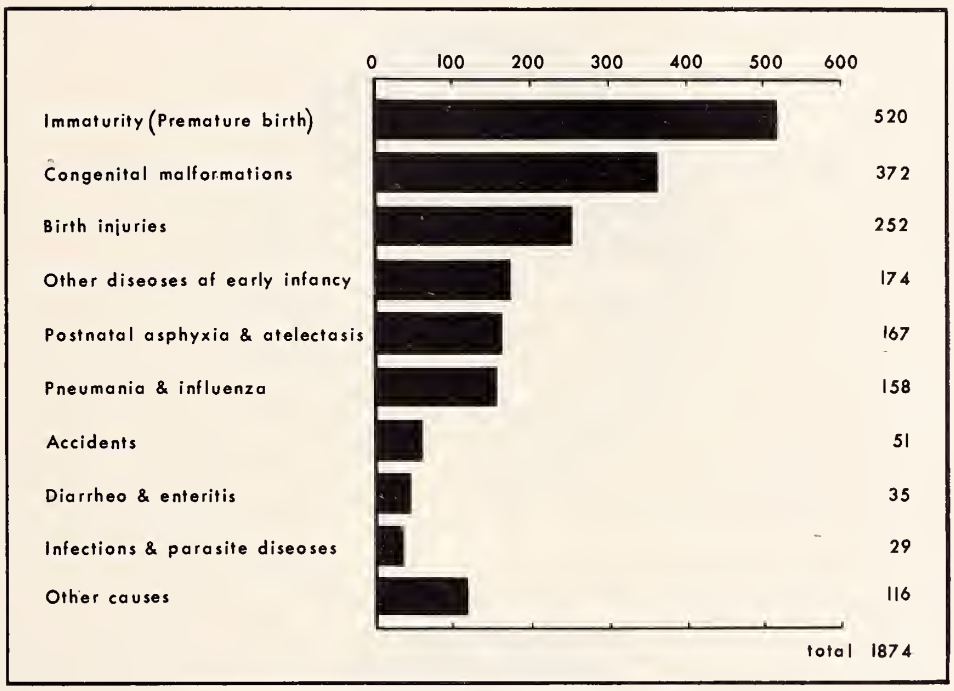

Fig. 2. Infant deaths by causes and number in Minnesota, 1950.

TABLE I. LIVE BIRTHS BY WEIGHT, COLOR, AND PLURALITY—MINNESOTA 1950 (PROVISIONAL)

Weight	Total		White		Non-white		Single		Multiple	
	No.	%	No.	%	No.	%	No.	%	No.	%
5 lb. 8 oz. or less (Immature)	4,401	5.8	4,294	5.8	107	8.4	3,616	4.9	578	38.9
5 lb. 9 oz. and over (Full term)	70,370	93.4	69,258	93.5	1,111	87.4	69,489	94.3	881	59.4
Not stated	568	0.8	513	0.7	55	4.2	543	0.74	25	1.7
Totals	75,339	100.0	74,065	100.0	1,273	100.0	73,648	100.0	1,484	100.0

Causes of infant deaths are shown in Figure 2. The leading cause of death was immaturity (prematurity), which was responsible for 28 per cent of the deaths. This was a decrease of almost 10 per cent from 1949, when immaturity was responsible for 37.4 per cent of infant deaths. In second place were congenital malformations, which accounted for 20 per cent, and in third place were birth injuries, accounting for 13 per cent of the mortality. Postnatal asphyxia and atelectasis were responsible for 9 per cent of deaths, pneumonia and influenza for 8 per cent, external causes for 3 per cent, and diarrhea and enteritis for less than 2 per cent. These figures showed slight variations from 1949.

Immaturity (Premature Birth)

Under the generally accepted statistical definition of immaturity (5.5 pounds or 2,500 grams or less), 5.8 per cent of all live births in Minnesota in 1950 were immature (Table I). Non-white births constituted 1.7 per cent of all births, but 8.4 per cent of these births were immature. As would be expected, almost 40 per cent of multiple births were immature in contrast to 5 per cent of single births. Only 0.8 per cent of all certificates of live births failed to record the birth weight, but five times as many certificates of non-white births omitted the weight. Almost 40 per cent of stillbirths were immature, but 25 per cent of the stillbirth certificates failed to show the birth weight (Table IV).

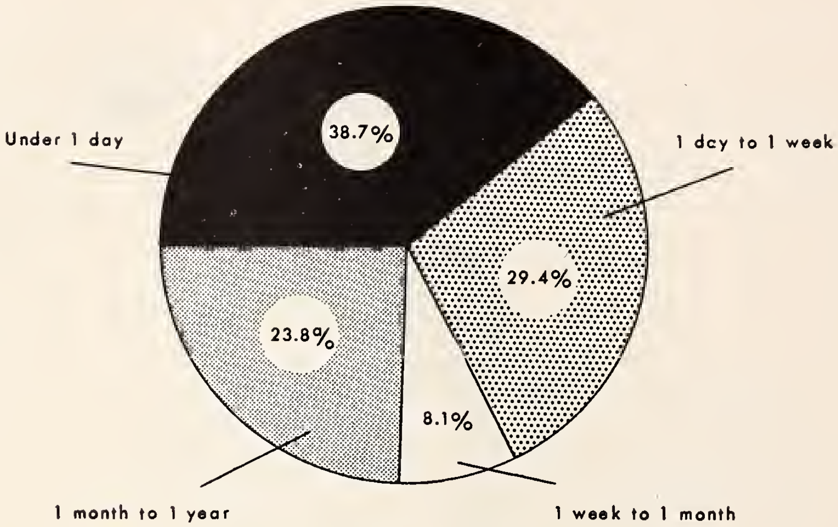

Fig. 3. Infant deaths by age period, Minnesota, 1950.

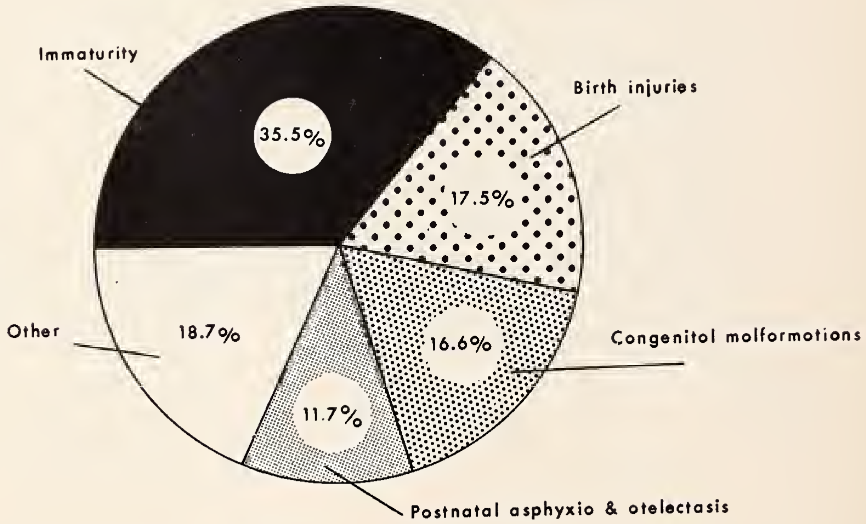

Fig. 4. Neonatal deaths by percentage, Minnesota, 1950.

Neonatal Mortality (First 30 Days of Life)

While infant mortality has decreased 64 per cent since 1915, neonatal mortality has decreased 54 per cent to a rate of 18.9 per 1,000 live births (Fig. 1). Almost 40 per cent of all infant deaths occurred on the first day of life, and another 29 per cent from one day to one week. Seventy-six per cent of all the deaths occurred under one month, and only 24 per cent between one month and one year (Fig. 3). It is apparent that there has been greater success in reducing deaths in the age group from one month to one year than among those occurring during the first thirty days of life.

Immaturity was responsible for 35.5 per cent of all neonatal deaths and 93 per cent of these deaths occurred during the first week of life (Fig. 4). This was a decrease of 14 per cent from 1949, when immaturity accounted for 49 per cent

TABLE II. POSTNATAL DEATHS BY CAUSE—MINNESOTA, 1950 (PROVISIONAL)

	No. of Deaths	Per Cent
Diseases peculiar to first year of life:		
Congenital malformations	134	30.1
Birth injury	2	0.4
Immaturity	13	2.9
Other diseases	19	4.3
Pneumonia and influenza	116	26.1
Diarrhea and enteritis	31	7.0
External causes	36	8.1
Infective and parasitic diseases	20	4.5
Other causes	74	16.6
Totals	445	100.0

TABLE III. CONGENITAL MALFORMATIONS IN LIVE BIRTHS BY WEIGHT—MINNESOTA, 1950 (PROVISIONAL)

Weight in Pounds	Total Live Births	Congenital Malformations				
		Yes	%	No	Not Stated	%
Less than 1	25	—		22	3	12.0
1	212	6	2.8	187	19	8.9
2	300	7	2.3	272	21	7.0
3	561	25	4.5	497	39	7.0
4	1,363	36	2.8	1,252	75	5.5
5 lb. 8 oz.	1,940	34	1.7	1,784	122	6.3
Total Immature (Premature)	4,401	108	2.5	4,014	279	6.3
5 lb. 9 oz.—5 lb. 15 oz.	2,706	44	1.6	2,533	129	5.0
6 lb.	16 319	158	1.0	15,262	899	5.5
7	26,333	198	0.6	24,724	1,411	5.4
8	17,884	127	0.7	16,651	1,106	6.2
9	5,686	29	0.5	5,290	367	6.4
10 and over	1,442	10	0.7	1,344	88	6.1
Not stated	568	17	2.9	323	228	40.1
Totals	75,339	691	1.0	70,141	4,507	6.0

TABLE IV. STILLBIRTHS BY WEIGHT AND CONGENITAL MALFORMATIONS—MI 1950 (PROVISIONAL)

Weight	Total		Congenital Malformations		
	No.	%	Yes	No	Not Stated
5 lb. 8 oz. or less (Immature)	489	39.5	80	325	84
5 lb. 9 oz. and over (Full term)	440	35.6	57	324	59
Not Stated	308	24.9	35	131	142
Totals	1,237	100.0	172	780	285

of the neonatal deaths. It is of interest to note that more than one-third (35.5 per cent) of neonatal deaths occurred among only 5.8 per cent of the live births (immature infants weighing 5.5 pounds or less), while 65 per cent of the neonatal deaths occurred among 94.2 per cent of the full-term live births (over 5.5 pounds in weight). Among the ten leading causes of death, prematurity is now in eighth place. Birth injuries and congenital malformations were each responsible for 17 per cent of the deaths, as in 1949. Congenital malformations are now in ninth place among the ten leading causes of death. Postnatal asphyxia and atelectasis caused 12 per cent of the deaths. Deaths from pneumonia (2.9 per cent) and external causes (1.1 per cent) occurred at the same rate in the previous year, but diarrhea of newborn occurred in only four infants (0.3 per cent).

Postnatal Mortality (1 month to 1 year)

The chief cause of death in this group (Table II) was congenital malformations, which were responsible for 30 per cent of the deaths during this period. This total is an 18 per cent increase over 1949 but is probably due to more frequent autopsies and more accurate diagnoses rather than to a real increase in mortality. Pneumonia and influenza, in second place, were responsible for 26 per cent of the deaths, a decrease of 16 per cent over the 1949 deaths, which amounted to 31 per cent of the total. In third place were deaths from external causes, which decreased from 11 per cent to 8 per cent. Diarrhea and enteritis deaths decreased from 10.8 per cent in 1949 to 7 per cent in 1950.

Congenital Malformations

A tabulation of certificates of live births (Table III) shows that, of 4,401 immature births, 2.5 per cent indicated congenital defects. The question was not answered on 6.3 per cent of the certificates. Among full-term newborns (more than 5.5 pounds) 0.97 per cent indicated congenital defects. On 6.0 per cent the question was not answered. Such defects, therefore, were noted two and a half times as often in immature infants as in full-term live-born infants.

Stillbirths certificates recorded congenital defects in 17 per cent, of which immature stillbirths totalled 20 per cent while full-term stillbirths totalled 15 per cent, but 15 per cent of the certificates in this group failed to answer the question. Of the total of 1,237 stillbirth certificates, 23 per cent failed to answer the question.

Since birth certificates require only "yes" or "no" to the question of congenital malformations, diagnoses are not available on live-birth certificates. It is, therefore, planned to query physicians for specific diagnoses in an effort to determine the frequency of occurrence of various defects and their ultimate outcome. Minor anomalies are infrequently noted on birth or death certificates. In addition, a significant number of infants who are believed to be normal at birth

TABLE V. INFANT DEATHS DUE TO CONGENITAL MALFORMATIONS—MINNESOTA, 1950 (PROVISIONAL)

	Under One Year	Under One Month	One Month to One Year
Total	372	238	134
Monstrosity	34	33	1
Congenital malformations of nervous system	103	55	48
Spina bifida and meningocele	50	28	22
Congenital hydrocephalus	45	23	22
Other	8	4	4
Congenital malformations of circulatory system	144	84	60
Tetralogy of Fallot	5	4	1
Patent ductus arteriosis (Bottali)	11	7	4
Interventricular septal defect	13	2	11
Interauricular septal defect	10	5	5
Coarctation of aorta	6	5	1
Other and unspecified malformations	99	61	38
Cleft palate and harelip	3	0	3
Congenital malformations of digestive system	40	26	14
Congenital hypertrophic pyloric stenosis	5	0	5
Imperforate anus	1	1	0
Other	34	25	9
Congenital malformations of genito-urinary system	12	9	3
Polycystic disease of kidney	7	6	1
Other	5	3	2
Congenital malformations of bone and joint	9	6	3
Chondrodystrophy	1	1	0
Congenital malformation of skull	6	4	2
Other	2	1	1
Other and unspecified not elsewhere classified	27	25	2

are found later in life to suffer from hidden anomalies.

Specific causes of infant deaths due to congenital malformations are tabulated in Table V. Of the total of 372 such deaths, 238 (64 per cent) occurred during the neonatal period and 134 (36 per cent) died from one month to one year. Slightly more than 80 per cent of all deaths due to congenital malformations occurred within the first year of life. During the first month (neonatal period) congenital defects of the circulatory system accounted for 36 per cent of the deaths, defects of the central nervous system for 23 per cent, monstrosities for 14 per cent, and defects of the digestive system for 12 per cent. It has already been stated that congenital malformations are responsible for one-sixth of all neonatal deaths (16.6 per cent) and for 20 per cent of infant deaths.

During the postnatal period (one month to one year) congenital malformations were responsible for 30 per cent of the deaths. Defects of the circulatory system were responsible for 46 per cent of deaths, defects of the nervous system for 35 per cent, and defects of the digestive system for 11 per cent.

The mortality rate among infants in the postnatal period is less than one-third that among infants under one month of age. Therefore, any sizable reduction in total infant mortality must be achieved during the neonatal period and possibly among stillbirths. The chief causes of death during this period are immaturity, birth injuries, and congenital malformations, which together are responsible for 70 per cent of all the deaths.

Many of the early births are due to obstetric complications which must, at present, be considered as unpreventable. In many instances, pregnancy probably could have been carried safely to a period of decreased risk to the infant by better prenatal care, adequate nutrition, and good clinical judgment and techniques in obstetrics. If the pregnancy does terminate in a premature birth, more adequate facilities and better trained medical and nursing personnel to treat prematures are necessary. A number of states have established centers to which premature infants are transported for special care. This problem involves medical care and is of a type that is not engaged in by the Minnesota Department of Health. Since the greatest mortality occurs on the first day of life, it is not considered advisable here to transport premature infants to such centers. It is felt that prematures can be handled locally by providing more adequate facilities in rural hospitals and by assisting in developing better equipped nurseries and better trained medical and nursing personnel in larger regional hospitals.

While many birth injuries are unavoidable, it is hardly necessary to point out that the type of anesthesia and analgesia, induction of labor and the clinical judgment and techniques used in operative procedures play an important part in events that may affect the newborn.

In the past, little attention has been given to congenital malformations, because inherited defective germ plasm cannot be controlled. In recent years it has been recognized that congenital anomalies may be acquired during pregnancy as a result of maternal disease, and certain environmental factors which can be controlled have been studied. For instance, Ebbs, Tompkins, and others have demonstrated that a proper diet, with adequate protein, vitamins, and minerals, decreases the number of stillbirths, toxemias, prematures, and congenital malformations. Experimental work by Warkeny, Ingalls and others has demonstrated the effects of diet in malformations

(Continued on Page 617)

EMERGENCY BLOOD TRANSFUSION

THOMAS H. SELDON, M.D.
Rochester, Minnesota

THE present state of world affairs demands a constant awareness of the possible sudden need for supportive treatment for large groups of people.

It is not within the province of this paper to weigh the pros and cons in the controversy over the need of a massive blood-grouping program; neither is it my intention to discuss the requirements for an adequate local civil-defense program for the maintenance of an emergency supply of blood.

Rather, I wish to emphasize a few salient points in respect to a situation in which an emergency transfusion of blood might be needed.

The two most important and inclusive reasons for transfusion of blood are: (1) to increase the total circulating blood volume, and (2) to increase the oxygen-carrying power of the blood.

Either of these indications is, or both are, applicable to routine medical patients as well as to surgical or other patients who need supportive therapy to prevent the onset of shock or to treat a patient already suffering from shock.

True, there are other indications for the use of blood transfusion therapy, but in view of the fact that the subject is "emergency blood transfusion," the foregoing two indications probably cover the indications for emergency transfusion adequately.

Clinical Diagnosis Leading to Emergency Transfusion

Depletion of the blood volume by the loss of whole blood, plasma or water is encountered under many circumstances.

Many medical conditions tend to produce such a depletion of blood volume; gastrointestinal hemorrhage and chronic ulcerative colitis come readily to mind. Severe trauma, surgical operations, extensive burns and many other conditions may tend to produce shock accompanied by a loss of blood volume.

Much knowledge has been gained concerning specific points of importance, such as how much loss of blood may be anticipated under certain operative procedures; how satisfactorily will the compensatory circulating mechanisms function under certain traumatic circumstances; how well will a patient withstand a debilitating disease without supportive treatment?

Properly to evaluate the patient's condition, whether it be a sudden surgical or traumatic emergency, or whether a medical patient has suddenly demonstrated the clinical picture of shock, three questions must be considered:

First, is the total blood volume decreased?

Second, what is lost—whole blood, plasma or water?

Third, what and how much is needed to restore the patient to a good physical condition?

Determination of loss of blood volume is not readily done without some equipment and the expenditure of time. The specific gravity of the blood may be estimated, dye may be administered intravenously and the resultant dilution determined, sponges may be weighed before and after operation, and so on. However, it would appear that critical evaluation based largely on observation must be depended on to a large degree.

Decision as to whether whole blood, plasma or water is the component lost is of real importance in selection of the type of therapy needed. Knowledge of the medical disease present or of the physical condition of the patient suffering from trauma or surgical intervention is helpful in arriving at a decision.

Shock due to simple loss of water occurs only in extreme alterations of fluid balance. This loss of water must be at least 6 per cent of the body weight before clinical signs of dehydration will be apparent. Even at this point, there is no real marked loss of blood volume, unless loss of water becomes so rapid that the ordinary compensatory mechanisms protecting the plasma volume are functioning inadequately. In this instance, hypotension and marked hemoconcentration may appear.

For evaluation of the loss of plasma volume a hematocrit determination may be suitable. Usual-

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From the Section on Anesthesiology, Mayo Clinic, Rochester, Minnesota.

Read at the annual meeting of the Minnesota State Medical Association, Rochester, Minnesota, May 1, 1951.

ly, an elevation of 1 above the normal per cent of 45 is accepted as corresponding to the loss of 100 c.c. of plasma. A loss of blood volume of approximately 35 per cent, which corresponds to a hematocrit reading of 60 to 65, usually results in low blood pressure. These observations do not necessarily obtain in the presence of burns after secondary anemia has made its appearance.

When whole blood is lost, the hematocrit determination is of relatively little value so far as estimation of the total loss of blood is concerned. Although different observers have varying opinions, the view in general seems to be that a blood pressure of less than 85 mm. of mercury is indicative of a 25 per cent loss of blood volume (1,500 c.c. in an average man). If vasoconstriction is marked and perhaps has been stimulated by the administration of vasopressor drugs, these clinical observations may be inaccurate.

Treatment

After the decision has been made as to the amount of blood volume lost and the particular component lost, and an idea has been formed as to what volume of therapeutic agent is warranted, treatment must be instituted. In view of the present knowledge of replacement therapy, it soon becomes evident that treatment for the most part will comprise the transfusion of whole blood or plasma and/or certain other solutions, such as saline, glucose, gelatin, dextran or other available agents.

The emergency nature of the situation and the occasional hampering effects of the site at which the emergency occurs must necessarily modify some of the more desirable details of the carrying out of any supportive therapy procedure.

Adjunct forms of therapy, such as the application of heat, placing of the patient in the shock position, administration of oxygen and so on will not be considered herein.

Restoration of Blood Volume.—Restoration of the reduced blood volume is the single, most important item in the treatment of traumatic and hemorrhagic shock. All other treatments are considered adjuncts. Restoration of blood volume must be considered from several points of view:

First, the type of fluid replacement available.

Second, the amount of fluid necessary satisfactorily to treat the patient.

Third, the response of the patient.

Fourth, the occurrence of any untoward reactions.

In most instances of clinical shock, the use of crystalloid solutions plays a secondary role; whole citrated blood or plasma is necessary to restore a normal circulation.

The general consensus now is that whole blood is the fluid of choice for restoration of blood volume. It is doubly valuable in view of the fact that after the treatment of shock with other fluids, anemia sometimes may be observed. Whole blood will ameliorate this situation. Yet there are situations in which whole blood may not be immediately and readily available; when this is true, other fluids necessarily will be used.

Insofar as possible, blood grouping and Rh typing should be carried out for recipients prior to the administration of blood. Similarly, if it is at all possible, cross-matching of the donor's blood cells and serum should be carried out with the recipient's serum and cells.

It is advisable to use the corresponding blood grouping and Rh typing of the donor and recipient; that is, blood group for blood group and Rh typing for Rh typing. In emergencies, a different situation arises; it is not always possible to determine the recipient's blood group and Rh type, and in such instances it is advisable to use group O blood from an Rh-negative donor.

Patient With Group O Blood as a Universal Donor.—At the Mayo Clinic it is the practice to determine the anti-A agglutinin titer of all group O donors. It has been noted that approximately 50 per cent of all persons whose blood belongs to group O have an anti-A agglutinin titer of 1:64 or less, the Mayo Clinic technique being used as the method of determination. It is our practice to administer group O donor blood which has an anti-A titer of more than 1:64 only to recipients whose blood type is group O.

Mathieson has observed that if group O donor blood recently has been administered to a recipient, it occasionally is difficult to determine conclusively the blood group of that patient if his blood is not in group O. This points up the advisability of determining the blood groups of prospective recipients before group O is administered. It follows, then, that when a blood grouping determination is requested and the patient concerned has received blood within a month, this information should be communicated to the laboratory.

Rh Typing.—It is the general consensus that corresponding Rh typing of the blood of the donor and that of the recipient should be the rule.

Insofar as possible, Rh-positive blood should be administered to patients with Rh-positive blood. It is known that certain patients with Rh-negative blood have been sensitized to the Rh factor by their having received Rh-positive blood by transfusion. Because of this possibility, whenever it is possible Rh-negative blood should be administered to patients who have Rh-negative blood.

When plasma has been lost, and the patient requires an emergency transfusion, the choice of fluid to be transfused should be obvious. Under such circumstances, human serum albumin does not seem to have any advantage over plasma.

Frozen, dried or liquid plasma seems to be equally valuable. In the special field of severe burns there is general agreement that plasma should be used initially and later followed by whole blood, as indicated.

Amount of Fluid Necessary for Replacement.—Many observers have advocated the use of formulas based on the hematocrit reading, on the erythrocyte count, on the value for hemoglobin, or on the specific gravity of the blood or plasma to determine the amount of blood or plasma necessary to be administered. These aids frequently are not readily available or are not practical. I believe that much emphasis should be placed on the clinical observations and the course of the treatment which is based upon these observations.

Circulatory failure which requires support in the form of emergency transfusion of blood may appear any time after severe trauma, or in medical emergencies during anesthesia or operative procedures, or postoperatively. In all instances it is imperative to give adequate supportive therapy. In circulatory failure the amount of fluid administered varies, as must the speed of administration. It may be that several hundreds of cubic centimeters of the right type of fluid may be administered rapidly enough to get 1,000 c.c. into the circulation quickly. Clinical judgment is very important in this respect.

Evaluation of the Response to Treatment

The whole purpose of the emergency transfusion of blood is to return the patient's physiologic and biochemical processes to as nearly normal as possible.

A good response is the return of the blood pressure to a reasonably normal level, followed by a slowing of the pulse rate and an increase in the total circulating blood volume. A lessening of the peripheral vasoconstriction and a return to normal of the cardiac output are important. There also should be a return to normal of certain biochemical criteria.

From a clinical standpoint, a warming of the skin, increased output of urine, improved pulse rate and increasing alertness of the patient are important.

Frequently, a poor response may be due to inadequate restoration of blood volume, continued bleeding and the like. If such poor responses persist, the emergency transfusion perhaps should be continued and operative interference considered if it is indicated. On the other hand, massive pulmonary edema may occur in late traumatic or postoperative periods and may be a cause of failure in the response to transfusion. If massive pulmonary edema occurs, a greater load of fluid such as would result from venous transfusion might unduly embarrass the patient. In such a situation arterial transfusion might be considered.

Conclusion

In these times of world unrest, no one is unaware of the potential needs for rapid and adequate supportive therapy. What is more imminent or actually present every day, however, is the mounting rate of accidents on the road, local civil disasters and other reasons for emergency transfusion. In addition to these, hospitals and physicians and surgeons every day are confronted with situations in which immediate supportive therapy is required. For these reasons and others, it is eminently desirable for all physicians to be aware of the fundamental principles of the important subject of emergency transfusion.

COIN LESIONS OF THE LUNG

DANIEL L. FINK, M.D.

Saint Paul, Minnesota

THE diagnosis of a solitary parenchymal nodular lesion of the lung has gained considerable importance in recent years by virtue of two stimulating factors. First, the routine chest x-ray examination of large sections of the population, and second, the marked advancements in thoracic surgery. For the past several years routine examinations of the chest have not only been done in large mass surveys, but have also become a routine part of hospital admissions as well as a part of the physician's routine physical examination. Were it not for the x-ray examination, most of the coin lesions would probably remain undiscovered. However, were it not for the possibility of surgical approach to these lesions, the importance of their discovery would obviously be minimized, if not altogether unimportant.

This study was undertaken largely in an attempt to determine whether or not any criteria could be established by which a differential diagnosis could be made prior to removal of the mass. Only those sharply circumscribed lesions of the lung which are globular in form and which are completely surrounded by lung tissue have been included in this study. All lesions related to the hilar area or those which superimpose themselves upon the hilum by virtue of their position near the midline have been omitted, as well as all lesions exhibiting fluid levels to indicate cyst or abscess formations. The term "coin lesion" has been used to denote a solitary lung nodule completely surrounded by lung tissue, and measuring 6 cm. or less in diameter. It is of course obvious that the term "coin lesion" is a misnomer, since the lesions are spheroid rather than disc-shaped. Nevertheless, the term is quite descriptive of the appearance of the lesion on the posteroanterior projections of the thorax upon the x-ray film (Fig. 1).

The discussion in the literature on this subject includes hilar lesions or those which are superimposed upon the hilum, and almost invariably includes lesions measuring up to 15 cm. in diameter. These lesions, it is felt, present a problem different from that of the coin lesion.

In this study an attempt was made to find a way to differentiate the malignant from the benign nodules. Of particular importance in this respect is the presence or absence of calcification within the lesions.

For the past few years we have attempted to discover a coin lesion containing demonstrable calcification, and which proved to be a primary malignant tumor. No such lesion has been observed in our experience. Thirty cases presenting coin lesions have been reviewed. In ten (33.3 per cent) calcium was demonstrable within the nodule, and not one of these proved to be malignant. Of the remaining twenty in which no calcium was demonstrable, ten (50 per cent) were malignant. This would therefore indicate that the presence of calcification is diagnostic of the benignancy of the lesion, while in the absence of calcium, there is a 50 per cent chance that the lesion is malignant. In the latter group, a diagnosis could not be made by any method short of resection and histological examination.

The presence of calcium within the coin lesion is frequently not readily apparent. Often special techniques are necessary before one can make this determination. Planigraphy has proved especially helpful in this situation (Fig. 2). When such apparatus is not available, a spot Bucky film may be useful. Although it is not within the scope of this paper to discuss indications or contraindications for operation, it is felt that the coin lesions with calcification need not necessarily be submitted to surgery.

On the other hand, those lesions without calcifications may be benign (Fig. 3) or malignant (Fig. 4). To recommend a period of observation may be misleading, since malignant lung nodules have been known to remain stationary for several years and thus lead the observer into a false sense of security, or may prove disastrous by becoming rapidly larger and possibly nonresectable (Figs. 5 and 6). In this group it is felt

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From the Department of Radiology, Veterans Hospital, Minneapolis, Minnesota, and the University of Minnesota. The statements and conclusions published by the author are the result of his own study and do not necessarily reflect the opinions or policy of the Veterans Administration.

Read at the annual meeting of the Minnesota State Medical Association, Rochester, Minnesota, April 30, 1951.

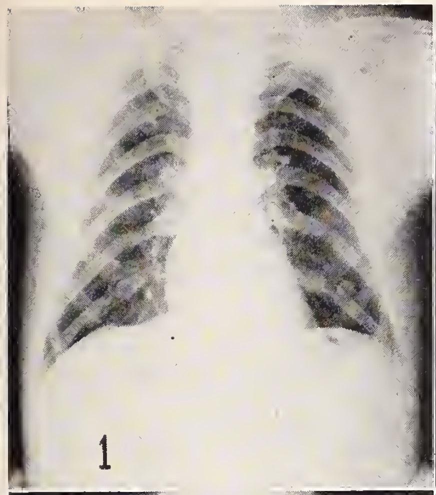

Fig. 1. Classical coin lesion in left lower lobe.

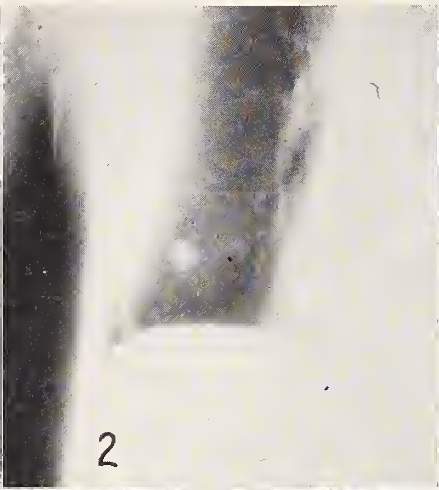

Fig. 2. Planigram of same case as Figure 1, clearly demonstrating stippled calcification within the coin lesion, and therefore benign.

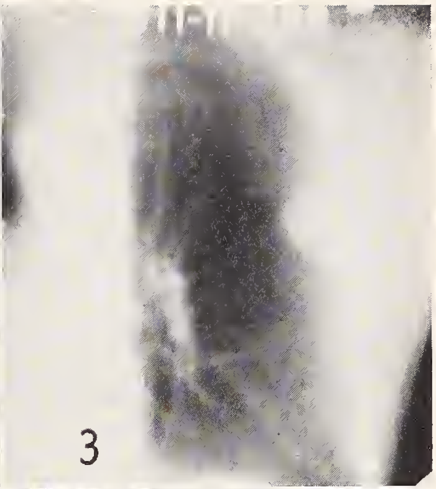

Fig. 3. A noncalcified coin lesion which proved to be a tuberculoma when resected.

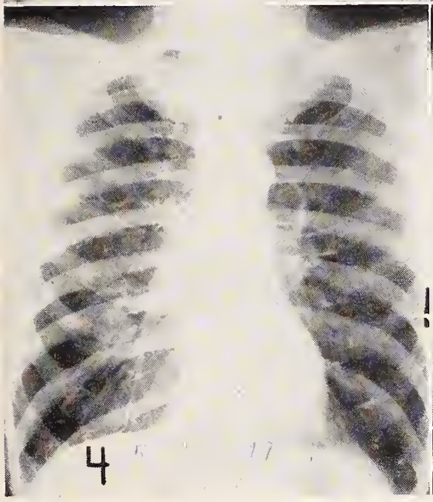

Fig. 4. A noncalcified coin lesion which proved to be carcinoma when resected.

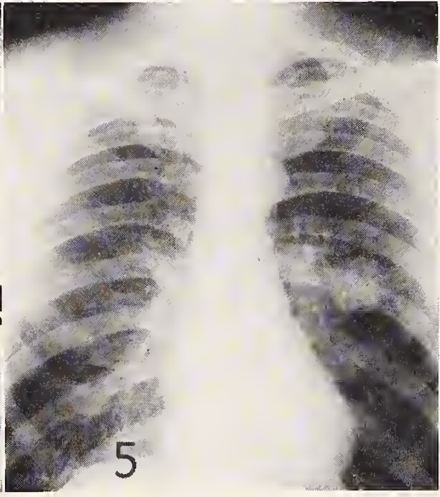

Fig. 5. A coin lesion without calcification discovered in a mass survery. Observation advised.

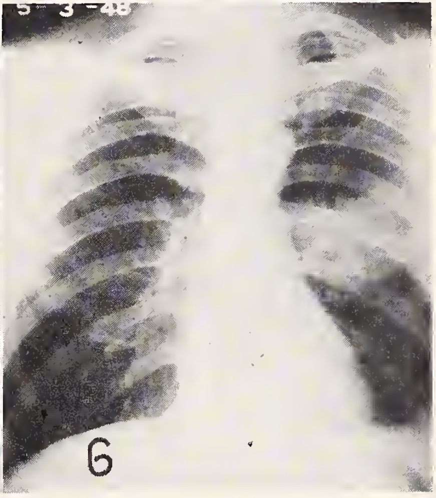

Fig. 6. Same lesion ten months later, showing marked enlargement, and spread to hilar area.

that resection of the lesion at the earliest possible time after its discovery is the procedure of choice.

Summary

A coin lesion is defined as a solitary pulmonary nodule completely surrounded by lung tissue and measuring 6 cm. or less in diameter. Thirty such lesions were reviewed. All those containing calcium were benign, while 50 per cent of those without calcification were malignant.

It is felt that the calcified lesion should be treated conservatively.

Exploration and resection of the noncalcified lesion is recommended at the earliest possible time after its discovery.

Tuberculosis has so far been habitually considered to be a manifestation of social misery, and it has been hoped that an improvement in the latter would reduce the disease. Measures specifically directed against tuberculosis are not known to preventive medicine. But in future the fight against this terrible plague of mankind will deal no longer with an undetermined something, but with a tangible parasite, whose living conditions are for the most part known and can be investigated further. —Dr. Robert Koch, a translation by Berna Pinner and Max Pinner according to a paper read before the Physiological Society in Berlin, March 24, 1882, and from the *Berliner klinische Wochenschrift,* 1882.

THE MANAGEMENT OF VASOMOTOR RHINITIS

JAMES B. McBEAN, M.D.
Rochester, Minnesota

NO entirely satisfactory form of therapy exists for vasomotor rhinitis. The literature is full of many types of treatment, none of which is effective in all cases. It seems increasingly evident from the recent literature that many authors are of the opinion that specific extrinsic allergy is a less common cause of vasomotor rhinitis than is intrinsic allergy. It is certainly true that in a large proportion of patients with vasomotor rhinitis the results of skin tests are all negative, and no specific allergy can be discovered. Recent articles emphasize endocrine dysfunction, sympathetic-parasympathetic imbalance and psychosomatic factors as frequent causes of vasomotor rhinitis.

The diagnosis of vasomotor rhinitis may frequently be made from the history. The typical story is of attacks of nasal congestion, sneezing and watery or mucoid nasal discharge. The patient may observe certain aggravating factors, such as cosmetics, certain foods, animals, and so forth. However, it is very common for a patient to have no idea what brings on an attack. An occasional patient with vasomotor rhinitis will mention nervous tension as an aggravating factor, but probably the majority have no idea what initiates their attacks. There are also those who have the symptoms all the time. This is particularly true of the symptom of nasal congestion. The coexistence of vasomotor rhinitis and asthma or asthmatic bronchitis is very common, and many of these patients also have nasal polyposis. An interesting triad of symptoms—asthma, nasal polyposis and allergy to aspirin—has been frequently observed here.

On examination, the nose may be entirely normal if the patient is seen in a period of remission. In such cases the history is most important in making the diagnosis. If the nose is seen during a symptomatic period, the mucosa is usually pale and the turbinates are swollen and boggy in appearance. The tissues appear wet, and clear mucus may be present. Polypoid changes are often seen in varying degree, usually in the middle meatus. Roentgenologic examination of the paranasal sinuses frequently reveals thickened or edematous membrane, but often no pathologic change is seen on the films. The finding of eosinophils in smears of the nasal secretions is helpful in making the diagnosis, but is not essential. My colleagues and I do not routinely examine smears for eosinophils. Cutaneous tests for sensitivity to extrinsic allergens can be considered fairly reliable for the inhalants, but in our experience skin tests for foods are not reliable, and in adults are almost disregarded. At the Mayo Clinic a minimal number of skin tests are done. In the average case of vasomotor rhinitis, intracutaneous tests are done for mixed ragweed, timothy, orris root, horse hair, dog hair, cat hair, cattle hair, rabbit hair, mixed feathers, house dust, kapok, pyrethrum, and goat hair; and scratch tests are done for cottonseed, flaxseed and karaya. Tests for food are done usually in children and young adults by the scratch method. If a patient gives a definite history of seasonal hay fever, the tests for the pollens are done by scratch rather than intracutaneously.

There are many factors to be considered in the treatment of vasomotor rhinitis,[5] and certainly no one form of therapy is effective in all cases. One of the first and most important steps is to instruct the patient to avoid all intranasal medication. We are all familiar with the chronic nasal congestion produced by habitual use of vasoconstricting nose drops.[2] There are many patients with rhinitis medicamentosa,[4] in whom the nose will revert to normal after nasal medication is stopped. The use of intranasal medications containing the sulfonamide drugs or antibiotics is particularly to be condemned. The incidence of allergic reactions to these drugs is very high when used intranasally. Their use should be restricted to the treatment of infections.

If specific allergens are discovered on skin testing, or if the patient gives a definite history of increase in symptoms when exposed to certain substances, he should be instructed to avoid these substances if at all possible. Unfortunately,

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From the Section on Otolaryngology and Rhinology, Mayo Clinic, Rochester, Minnesota.

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avoidance of extrinsic allergens is not always possible. This applies to such allergens as house dust or to substances with which a patient is in contact in his occupation. Most patients in whom no specific allergen is discovered, or in those sensitive to house dust, will derive benefit from the so-called dust-free bedroom.[1] Instruction in the preparation of such a room is given to these patients on the theory that about one-third of a person's life is spent in the bedroom. Dust-elimination measures consist of the application of dust-proof covers to mattresses and pillows; elimination of upholstered furniture and drapes which accumulate dust; the use of washable scatter rugs without rug pads; careful dusting of floors and furniture, preferably by someone other than the patient; and an air filter in the window. The air filter consists of an electric blower which forces air into the room through layers of cheesecloth mounted in a wooden frame in the open window. It is felt that this device should be used only in the summer. These patients do better sleeping in a warm room with the windows closed in the winter time. If the patient can afford it, an air-conditioning unit in the bedroom will be even more satisfactory than an air filter. In houses heated by circulating hot air it will be helpful to cover the air inlet in the bedroom with a cloth filter. All plants, flowers and household pets should be removed everywhere in the house. It should be remembered also that rug pads are made of cattle hair and their removal is advised if the patient has an allergy to this substance.

In regard to specific desensitization the greatest success is obtained in patients with pollen allergy or seasonal hay fever. It is not within the scope of this paper to discuss the details of hay fever therapy, and no attempt will be made to do so. It is our experience that other specific desensitization has not been very successful. Many authors have advised desensitization to dust in all cases of vasomotor rhinitis. Hansel and Shambaugh are among the leading advocates of this therapy. We feel that precautions against exposure to dust are more effective.

The antihistamine drugs are another addition to our armamentarium, but certainly do not offer complete or even partial relief to many patients. These drugs have become so numerous that to discuss them all would be impossible. A trial of antihistamine therapy is certainly worthwhile in all cases of vasomotor rhinitis. Those patients who derive benefit from them usually notice the improvement almost immediately. A long trial of antihistamine therapy without symptomatic improvement is of very little value. Patients vary greatly in the number of side reactions to these drugs. If a person receives symptomatic relief from the antihistamine but has a side reaction, such as drowsiness, a trial of several of the drugs is indicated to determine which one can be taken with the least side effect. The symptom of drowsiness is perhaps an advantage if the drug is taken at bedtime. It is to be remembered that the antihistamine drugs are not curative but offer only symptomatic relief.

It appears to be an accepted theory that there is a psychosomatic element in a large number of cases of vasomotor rhinitis. Nervous tension or neurosis of various types certainly plays a part in aggravating the symptoms in many patients. If other forms of therapy fail, a discussion of the functional aspects of the disease will be of help, at least in those patients who have some insight into their problems.

Nasal polyposis is probably the most common nasal complication of vasomotor rhinitis. The severity of polyposis is extremely variable. There may be a single small polyp in the middle meatus, or the nose may be completely filled with polyps. In the milder cases, it is not unusual to see the nasal mucosa revert to a state approaching normal under medical management. However, in the more severe cases with complete or partial obstruction, surgical removal is the best form of therapy. Recurrence of polyps after removal is so common that it is worth while to consider what type of operation offers the best hope for a permanently open nose. Certainly a major surgical operation is not to be considered if only one or two polyps are present which can be easily snared off in the office. The problem arises in those cases in which there are multiple polyps. Many of these patients have had numerous polypectomies and recurrences. It is felt that such patients are best operated on in the hospital under adequate local anesthesia. Most polyps are seen to arise in the middle meatus and appear to grow out of the ethmoid cells. They occur frequently also in the spheno-ethmoid recess, originating in the posterior ethmoids and sphenoid. In these patients thorough removal of all polyps in combination with intranasal ethmoidectomy, preserving the middle turbinate if possible, offers the best hope for a successful result. If polyps are present in the spheno-ethmoid recess, exenteration of the posterior ethmoids and opening the sphenoid should also be done. If nasal septal deflection is present to such a degree that access to the ethmoid area is difficult, a submucous resection adds greatly to the ease of the operation and requires very little more time.

It has been the practice at the Mayo Clinic for a number of years to use radium in combination with surgical treatment in many cases of multiple nasal polyps, especially those which have recurred several times. A 50 mg. tube of radium filtered with 1.0 mm. of platinum is placed in each ethmoid area and held in place with petrolatum (vaseline) gauze packing for three hours post-operatively. It is most difficult to draw any statistical conclusions from reviewing histories of patients treated with radium, but it is our impression that radium therapy is of some benefit in preventing recurrence. It is also our feeling that thorough surgical removal is even more important. Suppurative sinusitis may exist in patients with nasal polyposis, owing to blocking of the ostia of the sinuses. Here again careful but thorough removal of the polyps, with ethmoidectomy and the making of antrum windows, offers the best hope of cure.

Recently cortisone and ACTH have been tried in a few patients with nasal polyposis. The results have been encouraging in some, but in others no change in the polyps has been noted. It is too early to evaluate the results. It is possible that after cessation of therapy there will be a recurrence of the polyps.

Summary

There is no specific cure for vasomotor rhinitis. The medical treatment consists in avoiding offending allergens if they can be identified. All intranasal medication should be stopped. Desensitization offers the best hope in cases of seasonal hay fever. Its results in perennial vasomotor rhinitis have not been encouraging. Measures to reduce exposure to dust, such as the dust-free bedroom, should be employed. The antihistamine drugs may be used for symptomatic relief if they are effective. The functional factor should not be forgotten. Surgical therapy for polyposis is likely to be successful only if carefully and thoroughly carried out.

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SOUTH DAKOTA ENACTS "POUND" LAW

A "pound law" bill was passed by the South Dakota Legislature and signed by the Governor on February 15, 1951. The law becomes effective on July 1, 1951.

The bill provides that animals needed for medical experimental purposes may be obtained under license issued by the State Department of Health from establishments maintained by municipalities for the impounding, care and disposal of animals seized by lawful authority.

Institutions that may apply for such license are schools and colleges of agriculture, veterinary medicine, medicine, pharmacy, dentistry or other educational or scientific institutions properly concerned with the investigation of, or instruction concerning, the structure or functions of living organisms, the cause, prevention, control or cure of diseases or abnormal conditions of human beings or animals.

The State Department of Health is empowered to adopt rules and regulations necessary to insure the humane use of animals in such experimentation with the right to inspect or investigate institutions licensed or applying for license to secure experimental animals.

The South Dakota action brings to a total of three, states that have recently passed similar legislation. Thirty-one communities also have effected policies concerning the disposal of unclaimed impounded animals for medical use. Legislation is now pending in seven other states.

BRONCHOSCOPY AND COMMON CHEST DISEASES

PAUL G. BOMAN, M.D.
Duluth, Minnesota

In the diagnosis and treatment of diseases of the chest, bronchoscopy is one of our more valuable aids. It often gives to the physician the final and only definite information on which a correct diagnosis can be established. It also provides a therapeutic approach which may be of the greatest importance in itself or as an adjunct to other therapy. To fully exploit and utilize this valuable diagnostic and therapeutic procedure, it is necessary that we be conversant with its potentialities, its limitations and its place in the orderly process of diagnosis and treatment.

Introduced slightly over fifty years ago, the bronchoscope at first found limited use, mainly in the larger medical centers and in the hands of the otolaryngologists. Its use in the mind of the average physician was surrounded by mystery and was associated mainly with the diagnosis and removal of foreign bodies in the respiratory passages.

Gradually the work of the pioneers in this field extended its usefulness and its application, until today bronchoscopic procedures play an important role in the work of the anesthesiologists, the chest surgeons, the specialists in diseases of the chest, especially in tuberculosis, as well as the otolaryngologists. The technical training of many men in these various specialties has made bronchoscopy increasingly valuable and important in the diagnosis and treatment of diseases of the chest and has extended its availability through these specialists to most members of the medical profession. Today this diagnostic and therapeutic aid need not be withheld from any patient who may need it.

Bronchoscopy may be explained as a procedure which enables us to extend our range of inspection. As the roentgen examination allows us to see beyond the confines of the skin and to observe certain normal and abnormal functioning of various organs and to note the changes produced by various disease processes, so bronchoscopy enables us to inspect the main respiratory passages and to note their relative position, size, shape and function, as well as the changes brought about by disease. Within the range of vision (and this has been greatly increased by the use of modern telescopic equipment), it reveals obstructive situations such as are brought about by foreign bodies, benign and malignant new growths, granulomatous and cicatricial reactions resulting from inflammatory disease, mucous plugs, compression and torsion of bronchi, et cetera. It further enables us to note the appearance of the mucosa and the bronchial secretions and to associate certain changes with definite known disease processes. It permits us to obtain direct cultures and smears from bronchial secretions and tissue for biopsy, either by means of the cutting forceps, or by the gelfoam impression technique. Likewise bronchial washings of areas beyond the range of vision furnish valuable material for the pathologist versed in special cellular pathology. The removal of accumulated secretions and pus paves the way for more diagnostic bronchograms.

From a therapeutic standpoint, bronchoscopy permits the removal of foreign bodies, of abnormal secretions and of aspirated material. In the hands of the anesthesiologist, it is of special value in the postoperative inspection of the air passages and the removal of accumulated secretions—blood, pus, or aspirated material which might produce atelectasis. This is of unusual value following thoracic surgery and following obstetric and emergency surgery anesthesia where aspiration of vomitus may take place. Where postoperative atelectasis has taken place, it is often a lifesaving procedure by permitting the removal of mucous plugs and retained secretions. Dilatation of stenosed areas and aspiration of pus may be of considerable value in bronchiectasis, certain types of tuberculosis, lung abscess, and, occasionally, in bronchial asthma.

In the diagnosis of diseases of the chest, as in all diagnosis, it is important that the physician utilize all available and necessary diagnostic aids, but he must use them in a proper and sequential

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Dr. Boman is with the Department of Medicine, Duluth Clinic, Duluth, Minnesota.

Presented at the annual meeting of the Minnesota State Medical Association, Rochester, Minnesota, May 1, 1951.

order. The first and most important step in any diagnostic procedure is to obtain a careful and a comprehensive history from the patient and from the family; and this certainly applies in diseases of the chest. Then must come an intimate acquaintance with the patient in the form of a thorough and complete physical examination and observation of the patient's reaction to the disease through changes in temperature, pulse and respiratory rates, total and differential white counts and sedimentation rates. At this point the diagnosis may be established or suspected, and the physician can determine if he needs additional laboratory studies, roentgenological consultation and bronchoscopic assistance.

In most cases of pulmonary disease, roentgen studies are indicated and will usually give a definite and conclusive diagnosis if the data obtained are properly correlated with the history, the physical and laboratory findings. Where the diagnosis is not conclusive at this point, or if confirmation of a tentative diagnosis is desired, bronchoscopic examination should be carried out.

In order to utilize and correlate these procedures to the greatest advantage, there must be the closest co-operation between the attending physician, the clinical pathologist, the roentgenologist and the bronchoscopist. It is the obligation of the attending physician to provide the clinical history and all available data so that proper and specific diagnostic procedures may be carried out.

Without such co-operation and guidance, improper and inadequate roentgenograms may result, the energies of the pathologist may be dissipated in looking for acid-fast bacilli when he should have been studying cellular pathology, and the bronchoscopist may be unable to proceed effectively.

I am stressing this point because all too frequently patients presenting symptoms of chest disease are sent directly to the x-ray laboratory for a chest film without obtaining the important history or the physicial and laboratory data. This places the roentgenologist at a distinct disadvantage and he frequently cannot make an adequate examination. Then if the roentgen findings are indefinite, or uncertain (and they frequently are under such circumstances), a bronchoscopy is requested. Such a procedure can only result in dissatisfaction to all concerned and a very inadequate and often detrimental service to the patient. In many instances, a careful history and physicial examination, together with certain readily available laboratory procedures, would have established a diagnosis without the roentgen and bronchoscopic examinations, or would have rendered these examinations more valuable. They are expensive and often uncomfortable procedures for the patient and should not be ordered without due consideration, even as they should never be withheld when indicated.

What are the indications for bronchoscopic examination from the standpoint of the attending physician, and what are the contraindications to its use? In general, it may be said that it should be used whenever there is a history of the inhalation, or the possibility of inhalation of a foreign body, where the history and roentgen findings indicate bronchial obstruction due to new growth, either malignant or benign, where suppurative disease persists, where the cause of continuing cough and hemoptysis are unexplained, and whenever the roentgenologist needs help in interpreting certain abnormal findings.

Foreign bodies in the respiratory passages occur primarily in the younger age groups, 80 per cent occurring in individuals under the age of fifteen years, but they occur sufficiently often in the later decades so that we must be aware of this possibility. In children especially, the diagnosis can frequently be made from the history alone. At other times the diagnosis may be difficult. The presence of a radiopaque foreign body can be readily established by fluoroscopy or with a roentgenogram. The recognition of nonradiopaque foreign bodies is more difficult, and these are often overlooked. Here is where a careful history and proper roentgen studies are of the greatest value. Roentgen evidence of emphysema or atelectasis as noted under the fluoroscope, or on films taken on inspiration and expiration, is a definite indication for a bronchoscopic examination.

It is well to remember that after the initial coughing or gagging spell, an inhaled foreign body may produce no symptoms until it produces partial or complete obstruction of a bronchus. Many so-called recurrent pneumonias are due to unrecognized vegetable foreign bodies.

New growths, whether benign or malignant, may produce few and indefinite symptoms until obstruction of a bronchus occurs. When recognizable atelectasis has occurred, the diagnosis may be obvious, but the optimum time for the removal of the lesion may have passed. If we are to make progress in the treatment of malignant disease of the respiratory passages and lungs, we must be alert to the earliest symptoms, such as unexplained persistent cough, localized wheezing respiration, and occasional hemoptysis. Patients presenting these symptoms should have the advantage of every available diagnostic facility, including bronchoscopy. Careful collection and study of the sputum may demonstrate malignant cells in a high percentage of cases. Occasionally tumor tissue is coughed up and may be imbedded in paraffin, sectioned and studied microscopically. The secretions aspirated directly from the involved bronchus, or washings from such a bronchus, have yielded as high as 90 per cent of positive findings in certain clinics. While bronchoscopy is of the greatest value in arriving at a diagnosis, it may not always be readily available. In such instances we should not hesitate to utilize sputum studies to the fullest extent.

In benign lesions, such as adenomas, the diagnosis will depend on the bronchoscopic appearance of the lesion and on a direct biopsy of the same. Single observations and biopsies may not establish a diagnosis, and in such instances, repeated examinations are indicated.

In suppurative conditions, such as chronic bronchitis, bronchiectasis, and lung abscess, bronchoscopic examinations are indicated to rule out foreign bodies or other obstructing lesions, to determine the presence of stenosis, to obtain cultures and smears, to remove the accumulated secretions preliminary to bronchography, or for therapeutic purposes. These and other indications will occur to the conscientious physician as he attempts to solve the many complex diagnostic problems which face him. A careful analysis of all factors and sound clinical judgment should always direct his course of action.

The contraindications for bronchoscopy are few if the procedure is really indicated. It should not, as a rule, be employed in acute inflammatory disease of the respiratory passages or in the presence of active hemorrhage from the same. Caution in its use should be exercised in patients with heart disease, especially in the face of active or impending cardiac failure. It should be deferred or omitted if possible in patients with severe hypertension, with aneurysm, previous cerebral accidents, stenosis of the larynx or trachea, and in weak and debilitated individuals. In making a determination of whether the examination should be done in these patients, it is necessary to consider all factors and to be very certain that the need for the examination warrants the attendant risk and danger to the patient.

DDT INSECTICIDE SAFE IF WISELY USED

(Continued from Page 540)

mals being prepared for slaughter, the committee pointed out, since there is a danger of accumulation of the substance in the milk and tissues of treated animals.

Other precautions suggested by the committee are as follows:

"DDT insecticides should never be stored in food cupboards or medicine chests where there is a likelihood of contamination of food or mistaken use. All exposed foods, utensils, and working areas must be covered when kitchen and dining areas are being sprayed. Children's toys or cribs and rooms occupied by sick people should not be sprayed. Use of oil solutions on household pets should be avoided and DDT powders should be used only where they cannot be licked off. Intimate skin contact with aerosol discharge is to be avoided. Plants and aquariums in the home should be removed or covered before applying DDT sprays or aerosols. The use of oil solutions in the vicinity of open fires should be avoided because of the inflammability of such mixtures. . . .

"Persons exposed to large amounts of DDT dusts and powders under confined conditions or where dust particles are not carried away by free movement of air currents should wear respirators. [Chronic poisoning from DDT may result from prolonged ingestion or exposure to small amounts.] Such conditions might be encountered in mass delousing procedures, larviciding with dusts, and manufacturing or formulating operations. Protective clothing should be worn when there is a possibility of greases and oils contaminating the skin, thereby enhancing the absorption of DDT dusts or powders. . . .

"Frequent or prolonged exposure to emulsions or solutions of DDT in petroleum oils and organic solvents should be avoided unless protective clothing, goggles and neoprene or solvent-resistant gloves are worn. [Oily solutions may be absorbed through the skin.] Clothing must be changed promptly if concentrates are spilled on them. A contaminated skin area which has come in contact with DDT soaked clothing or spilled DDT concentrates should be washed immediately with soap and water. Concentrates should be mixed in well ventilated rooms and fire precaution observed when volatile and inflammable solvents are present. . . .

"Operators involved in large scale spraying or fogging with solutions of 5 per cent or more of DDT should wear respirators and other protective devices. Smoking is to be avoided during spraying when combustible mixtures are used. Greaseless skin lotions should be used on exposed body surfaces when irritant solvents are present in the formulation. Clothes should be changed and the body cleansed after each day's operation."—AMA News Release, March 9, 1951.

History of Medicine In Minnesota

MEDICINE AND ITS PRACTITIONERS IN OLMSTED COUNTY PRIOR TO 1900

NORA H. GUTHREY
Rochester, Minnesota

(Continued from the May issue.)

Pioneer physician of personal and professional merit, Harriet E. Preston was the first woman to seek membership, and one of the first three women to win it, in the Minnesota State Medical Society. Her experience in Minnesota resembled that of Dr. Ann Preston (1813-1872), native of Westgrove, Chester County, Pennsylvania, and graduate of the Woman's Medical College of Pennsylvania in 1852, whose name is forever linked with that college, in gaining professional place for women physicians in the hospitals of Philadelphia and in the Philadelphia County Medical Society. The story of Dr. Harriet E. Preston's persistent struggle for recognition, as recorded in the transactions of the Minnesota State Medical Society, makes good reading. In Winona, at a semi-annual meeting of the society in June, 1870, Dr. A. B. Stuart, at the request of Dr. W. W. Mayo, presented Dr. Preston's respectful request for "admission to the convention and for permission to take part in its deliberations." The physicians perhaps would have granted her admission to the convention; they balked at the idea of a woman joining in their deliberations, and refused her request by a vote of three to one.

Dr. Preston's candidacy for recognition started an argument that waxed and waned for ten years. At the beginning the proposed admission of women (specifically, Dr. Preston) was favored by Drs. Stuart, Mayo, Brewer Mattocks and W. W. Sweney; it was tolerated conditionally by others, notably Dr. C. N. Hewitt; and it was opposed bitterly by many, among them Drs. Solomon Blood, Alexander J. Stone and John H. Murphy. Dr. Murphy early foresaw defeat for he said, "This female-woman question is looming up and you can't stop it." In the arguments against admission of women the ancient clichés were aired: woman's physiological disability disqualified her; feminine delicacy would make impossible the frank discussion of certain matters that inevitably arise in medical practice; in short, woman's place was in the home. At Dr. Preston's second attempt, in 1871, the state society took refuge in the dignified statement that action could not be taken until the American Medical Association should accept as in good standing Dr. Preston's alma mater, the Woman's Medical College of Pennsylvania.

The American Medical Association at its meeting in San Francisco in 1871 debated the acceptance of delegates from "female colleges." It was distressing to learn that if members of the association were forbidden to recognize women physicians as colleagues and to consult with them professionally, it followed that members were barred automatically from recognizing the eminent Dr. Alfred Stillé, of Philadelphia, president of the American Medical Association, who was consulting physician at the Woman's Medical College of Pennsylvania. The whole subject was tabled indefinitely.

In 1871 also Dr. W. W. Mayo in a surgical report before the Minnesota State

Medical Society made public acknowledgment of Dr. Preston's able surgical assistance in various operations for rectocele, construction of artificial perineum, and amputation of the cervix uteri. The Wabasha County Medical Society defined its position: "Resolved that this Society looks upon all regularly educated physicians as our equals and does not consider that we violate any of our professional obligations by consulting with them." In 1874 the claims of women physicians again were brought before the state society and were rejected by a vote of twenty-seven to thirteen, and they were quashed again the next year. In the ensuing five years record was not made of further discussion. In 1880, however, the Committee on New Members, made up of Drs. M. Hagen, C. N. Hewitt and F. A. Dunsmoor, proposed Dr. Harriet E. Preston, Dr. Clara E. Atkinson and Dr. Edith M. Gould, all of St. Paul, as members. There were only three adverse votes; the election was recorded as unanimous.

Dr. Preston, in St. Paul, continued as a member of the state society up to and through 1888; thereafter her name did not appear on the Minnesota Register. Long afterward it was learned from the Woman's Medical College of Pennsylvania that Dr. Preston was registered in 1915 as living in Pennsylvania; in 1923 she was listed, "address unknown"; in 1929, "died." In the period 1906-1929 her name did not appear in any issue of the directory of the American Medical Association.

Marion Putnam, one of Olmsted County's early practitioners of medicine, was in Oronoco in the middle eighteen seventies and perhaps for some time earlier. In 1877 he attended an old settlers' meeting in Kalmar Township and in that year also was a representative of the Oronoco Lodge of Good Templars at a conference in Winona. Notes on early medicine in Nicollet County (unpublished, 1947) state that Dr. Marion Putnam, of uncertain professional rating, was in the village of Nicollet in 1878 and 1879.

Henry Raymond Randall (1864-1890) was an assistant physician, the sixth professional appointee, at the Second Minnesota Hospital for Insane at Rochester for ten months beginning in January, 1889.

Born in St. Peter, Minnesota, on November 20, 1864, "Harry" Randall grew up in that village and there received his early education in the public schools. Early in 1887, on graduation from Rush Medical College with the degree of doctor of medicine, he entered practice with Dr. D. A. Stewart in Winona. His state license, No. 1309 (R), was issued on February 25, 1887.

Dr. Randall was a young man of fine personality and excellent native ability. Early in his residence in Rochester he became a member of the Olmsted County Medical Society and the Minnesota State Medical Society. In October, 1889, resigning his position at the state hospital, he returned to Winona to resume partnership with Dr. Stewart. His promising career ended in December, 1890, with his death from diphtheria, a few days after his twenty-sixth birthday.

J. E. Reece (or Reese) in the autumn of 1866 announced that he was settling permanently in Eyota, Olmsted County, for the practice of his profession. In the *Federal Union* of Rochester, on January 26, 1867, appeared this card: "Dr. J. E. Reece, Eclectic Physician, Eyota, Minnesota, gives constant attention to his profession and particularly to those branches related to all chronic diseases.

He can be summoned from all quarters, far and near. His previous success warrants him in advertising." His notices have not been observed in issues of local publications after October, 1867.

Reginald Maxwell Reynolds (1843-1898), a graduate of Bellevue Hospital Medical College of New York in 1866, came to Rochester, Minnesota, in September, 1867. He has been described as a cultured gentleman of personal charm and a physician of high professional attainments.

Dr. Reynolds was a charter member of the original Olmsted County Medical Society that was founded on April 15, 1868, its first secretary, first chairman of the committee on chemistry, and one of the six members who drew up the society's fee bill.

Within the ensuing year Dr. Reynolds left Rochester temporarily; in February, 1869, he announced his return. He then was making his home at the residence of Z. J. Cowles and occupying the office vacated by Dr. J. S. Allen, a retiring senior physician. On September 8, 1869, Dr. Reynolds was married to Helen A. Cowles, one of the seven children of Zalmon J. Cowles and Sarah Huber Cowles, pioneer residents of Rochester. As mentioned earlier, a sister of Mrs. Reynolds, Kate Cowles, became the wife of the Hon. Joseph A. Leonard, of Rochester; another sister, Frances Kachicqua Cowles, was married to the Hon. Elmer E. Adams, of Fergus Falls.

In April, 1871, Dr. and Mrs. Reynolds removed from Rochester to Dixon, Illinois; a few months later they returned to Rochester, and shortly afterward, in 1871, they settled in Fergus Falls, where Dr. Reynolds for the next twenty-five years successfully practiced his profession. He is believed to have been the first physician in Fergus Falls and perhaps in Otter Tail County. In recent years a facsimile of the log cabin in which he first lived and practiced has been presented to the historical society of that county.

Beginning in 1872 Dr. Reynolds served as a division surgeon for the St. Paul and Pacific Railroad. In reports of the Committee on Epidemics, Climatology and Hygiene of the Minnesota State Medical Society in the early seventies he was quoted as an observer. His name has not been noted on the roster of the society; in 1874 action on his application for membership was deferred because he had not presented his diploma. He was licensed in Minnesota on October 15, 1883, receiving certificate No. 161 (R).

The following is an extract, received through the courtesy of Mr. Elmer E. Adams, from Mason's *History of Otter Tail County:*

> Dr. Reynolds deserves more than a passing notice. He was a man who stood high in his profession; was learned in many branches outside of medicine, and had wonderful literary ability. His girl-like modesty to a great extent kept his light under a bushel, and none but his most intimate acquaintances fully appreciated his great resources. A student all his life, he read the classics as readily as his mother tongue, and could express himself in prose or poetry with remarkable felicity.
>
> He could not make a speech in public any more than a mute; but, sit down with him alone, and he could talk by the hour and it would sound as though he were reading from a book. He had not been here long, surrounded by descendants of the old Vikings, before he could read their language with the best of them, and understand it as though it were his own. Though he was never strong physically, his work was strenuous. The country was sparsely settled and his rides covered a wide territory. In the winter of 1873, at the time of the great blizzard, the echoes of which have not yet died away, he was alone, and no physician to give him aid. Scores were frozen to death and many more crippled for

life. He worked day and night, and performed numberless operations with no assistance except that of a young lawyer by the name of D. P. Hatch, who accompanied him and rendered such aid as he was able to give.

In 1895 Dr. and Mrs. Reynolds left Minnesota for Redlands, California, where the doctor grew oranges. He died in Redlands from cardiac disease in 1898 at the age of fifty-five years, survived by his wife. There were no children. Mrs. Reynolds lived many years after her husband, and her last two years she spent in Fergus Falls and in Rochester. Her death occurred in Rochester.

The name of **Roberts** has appeared in several connections, sometimes erroneously, with the practice of medicine in Olmsted County. The record remains obscure.

In April, 1881, *Dr. D. H. Roberts,* a homeopathist from Underhill, Vermont, opened an office in Eyota, over the general store of Blair Brothers; he was still in practice there a year later. In a gazetteer and business directory of the state the name was given "Dr. H. R. Roberts"; further data about him have not been observed. In 1883 a news item from near-by Dover stated that *Dr. G. W. Roberts,* "father of *Dr. Roberts, Jr.,*" was very low and that all hope had been given up for his recovery.

The Dr. D. H. (or H. R.) Roberts of Eyota is not to be confused with *Dr. Daniel Hough Roberts,* a homeopathic physician (1824-1910), a native of Wayne County, Indiana, who came from Indiana into southern Minnesota about 1869 and who until 1903 made his headquarters in Owatonna. He was a founder of the Southern Minnesota Homoeopathic Medical Society, at Owatonna, in October, 1871, and was active in the affairs of the Minnesota State Homoeopathic Medical Institute. He was not a graduate of a medical school. Eckman, in 1941, in an article on homeopathic and eclectic medicine in Minnesota, reviewed Dr. Robert's life.

It has been said that Dr. Daniel Hough Roberts first and briefly was in Plainview, Wabasha County. Although the statement cannot be disproved, it seems likely that this physician has been confused with *Dr. Francis H. Roberts,* a homeopathic physician who came to Plainview from southeastern Indiana in 1868 and remained there, with the exception of a period in 1887-1889, when he returned to Indiana, until his death. His practice extended widely into Wabasha, Winona and Olmsted Counties. Dr. F. H. Roberts, of Welsh descent, was a graduate, in 1861, of the Western Homeopathic College, in Cleveland, Ohio, and held Minnesota state license No. 1429 (H), issued on May 28, 1887. He is recalled as a cultured gentleman and a reliable practitioner, who made many trips to Cleveland to attend medical lectures, had an excellent library, and subscribed to medical journals, chief among them the *Medical Observer.* Dr. Roberts' wife was the daughter of Dr. Ira Condit Perrine, of Sparta and Moore's Hill, Dearborn County, Indiana. Dr. Ira Condit Perrine was a cousin of Dr. Martin Thompson Perrine, who was the first physician, in 1855, in Rochester, Minnesota. A surviving daughter of Dr. F. H. Roberts is Mrs. Arthur (Mary) Searles of Plainview.

A **Dr. Robertson** from Freeborn County, Minnesota, a graduate of Rush Medical College, opened an office at the A. J. Russell residence in Pleasant Grove, Olmsted County, in April, 1892. He was welcome in the village, which had lacked a resident physician since Dr. Aaron L. Baker removed to Byron in the previous

September. After a few weeks Dr. Robertson also removed, to Waseca, Waseca County, it was said.

There is record in the *Official Register of Physicians of Minnesota* for 1883-1909, that in 1892 J. B. Robertson was graduated from Rush Medical College and in 1893 was licensed in Minnesota; in 1909 he was at Cottonwood, Lyon County.

Harvey Nehemiah Rogers (1837-1926), an eclectic physician and surgeon, was for twenty-one years a pioneer practitioner in southern Minnesota, five years in Oronoco, Olmsted County, and the next sixteen years in Wabasha County; thereafter he spent a few years in Wisconsin, in Whitehall and Chippewa Falls, and the remainder of his long life in Farmington, Dakota County, Minnesota.

A native of Raymond, Racine County, Wisconsin, Harvey N. Rogers was born on June 1, 1837, the son of Reuben Rogers, a farmer, and Sally McNair Rogers. Two brothers of Mrs. Reuben Rogers were physicians, a fact that may have influenced her son in his choice of profession. On his seventeenth birthday his father gave him forty acres of woodland to be cleared for agriculture. The boy was ambitious, however, for education beyond that gained in the district school, and after a few days of felling trees he offered to give back the land if his father would release him to continue his schooling. To outfit himself, he began working for his uncle at Mauston, Wisconsin, painting the barn for twenty-five cents a day. Later he attended Wayland Academy, where he earned his way by doing chores and odd jobs.

At the age of twenty-three years, on September 17, 1860, Harvey N. Rogers was married to Lucy Wright, a native of La Fargeville, New York, who was born on December 23, 1834. There were four children of the marriage, a son, Elliotson H. Rogers, and three daughters, Amarantha, Lutrella and Mabel E. Rogers.

Dr. Rogers received his diploma from the Eclectic Medical College of Pennsylvania, in Philadelphia, in 1864 (sometimes given 1865), and immediately after graduation left for Muncie, Indiana, to begin the practice of medicine. Sudden change in plan took him to Mauston, Wisconsin, where he enlisted in the Union Army. Records of the family show that in June, 1865, he was stationed near Greensboro, North Carolina, where he was assistant surgeon in the 177th Volunteer Regiment of Infantry, Second Brigade, Third Division, Twenty-third Army Corps.

In July, 1865, having been mustered out of the army, Dr. Rogers settled in Oronoco, Olmsted County, Minnesota. He was the only physician in the village, succeeding Dr. Hector Galloway, who had removed to Rochester, and occupying the Galloway residence on the south bank of the Zumbro River. The *Rochester Republican* of August 16, 1865, in announcing the doctor's arrival, said "The doctor's advent supplies a want much felt by the citizens of Oronoco, as no physician was to be had nearer than Rochester." On September 13 that newspaper reported, "Dr. H. N. Rogers wants a medical student. A young man who has the right material in him and wants to study medicine will find an extra good chance with Dr. Rogers."

In July, 1870, Dr. Rogers removed from Oronoco to Lake City, where he practiced medicine for a year. There Lucy Wright Rogers died and was buried in Lakewood Cemetery. Soon afterward with his four young children Dr. Rogers settled on a farm in section 20 of Guilford Township, Wabasha County, about two and a half miles northeast of Zumbro Falls and practiced medicine in the community. After the death of his first wife he was twice married: on February

18, 1872, to Mary E. Conway, who died in 1903; and some time after her death to Lydia Berry. There were no children of these marriages.

In 1886, it is said, Dr. Rogers removed to Whitehall, Wisconsin, and subsequently to Chippewa Falls, that state, as noted, and a few years later to Farmington, Minnesota. On May 28, 1914, the citizens of Farmington showed their esteem for Dr. Rogers and their appreciation of his services by tendering him a banquet celebrating his fiftieth year of medical practice. Tribute was paid Dr. Rogers as educator, citizen, friend, and neighbor; there was a toast, "The Doctor and the Family" and, last, "Half a Century of Medicine."

Dr. Rogers died at his home in Farmington on September 8, 1926, survived by his wife, Lydia Berry Rogers, and his three daughters, Mrs. A. B. Boyce, of Farmington, Mrs. Lutrella R. Wilson, of Chicago, and Mabel E. Rogers, of Oak Park, Illinois. His son, Dr. E. H. Rogers, of Stevens Point, Wisconsin, preceded him in death on August 30, 1926.

Dr. Rogers' daughter, Mrs. Boyce, has stated that among her father's old papers is his certificate, in Latin, from the Southern Minnesota Eclectic Medical Association. (This society was incorporated on November 14, 1869.) Under the Minnesota "Diploma Law" of 1883 Dr. Rogers held certificate No. 909 (E), dated May 9, 1884. Further record appears in the following extract from a report of the sixty-sixth annual meeting of the Wabasha County Medical Society at Lake City on July 5, 1934: "A resolution was passed providing for the proper marking of the grave of Dr. Rogers, a pioneer physician in the county, one of the charter members of the Wabasha County Medical Society, at one time a practitioner in Lake City, a veteran of the Civil War, who died at Farmington, in 1926, and whose body now lies buried in Lakewood Cemetery, Lake City."

E. M. Roys was the third woman physician to practice in Rochester, Minnesota, it is believed, and perhaps was the first woman practitioner in the city who was a member of the regular profession. Of her predecessors one was a "magnetic healer" and the other described herself as an eclectic physician who treated all chronic diseases with electricity.

Dr. Roys' professional card appeared in the *Rochester Post* at intervals from January 11, 1868, to May 9, 1869; her office first was in Graham's Block and later in Head's Building. She was listed in *Mervin's Business Directory* of 1869-1870. On July 17, 1871, the *Central Record* of Rochester carried the following item: "Miss E. M. Roys, M.D., is about to be married and move to England to live. Miss Roys will be remembered as an old resident of this city and a practicing physician of rare merit, beloved by all who knew her. May she be happy in her new situation."

The name of Dr. Roys did not appear on the roster of the Olmsted County Medical Society, organized on April 15, 1868.

Herman Richard Russell (1871-1929) for thirty-three years was a physician and surgeon, twenty-four years in Stewartville, in his native Olmsted County, and nine years in St. Paul.

Born on June 10, 1871, in Pleasant Grove, he was the only child of Charles W. Russell and Martha J. Lovelace Russell, both of whom were born in Pennsylvania, and was a grandson of Richard S. Russell, a native of England, who came as a young man to the United States.

Richard S. Russell lived first in New York, later in Pennsylvania, and in 1856 came to Minnesota and settled with his wife and children on a farm in Pleasant Grove Township, Olmsted County, where he and his family became representative citizens. The children were: Caroline (Mrs. Fred.) Russell, Charles W., Mary (Mrs. Frank) Denny, Arthur James, Emmeline (Mrs. Edwin) Dorr, Richard Venango, Ross Henry and Nell (Mrs. Hugh) Neill. Of these children Richard Venango Russell, of Stewartville and Rochester, became widely known in southern Minnesota. A handsome man, finely built, more than six feet in height, of dignified presence, in his later years he wore his gray hair long and had chin whiskers: He bore a striking resemblance to the well-known pictures of the nation's "Uncle Sam" and because of this for many years was much in demand in the southern counties and in the Twin Cities to lead patriotic parades. Charles W. Russell, eldest son of Richard S. Russell, was the only member of the family old enough to serve in the Civil War; in 1862, just under eighteen years old, he was accompanied by his father when he went to enlist in Company H, Sixth Minnesota Volunteer Regiment of Infantry. After his military discharge at the end of three years he was a merchant in Pleasant Grove. He spent his last years in Stewartville, where he died on March 17, 1927.

Herman R. Russell received his early education in the village school of Pleasant Grove and at Darling's Business College of Rochester. After teaching school two years in Pleasant Grove, he matriculated, in the autumn of 1895, at the College of Physicians and Surgeons (after May 1, 1900, the College of Medicine, University of Illinois), in Chicago, for a course of four years. In 1898, still an undergraduate, he was licensed to practice medicine in Minnesota. In July, 1899, shortly after graduation with the degree of doctor of medicine, Dr. Russell began in Stewartville a practice that was interrupted only once, when for a few months in 1900 he served as locum tenens for his brother-in-law, Dr. Patrick H. Manion (a native of Olmsted County), of Charlotte, Iowa, while Dr. Manion was on an official mission of scientific study in Europe.

In Stewartville Dr. Russell had his offices successively in the Moore Block, the Davis Block, and in rooms connected with the Stoddard Drug Store. In the summer of 1922 he removed to St. Paul, where he had headquarters in the Pioneer Building, later in the Lowry Building, and at 608 South Smith Street. His residence was in Cherokee Heights, St. Paul. He built up a large practice and won an enviable place in the medical profession of the Twin Cities.

Throughout his career Dr. Russell was active in representative medical organizations: the Olmsted County Medical Society, the Southern Minnesota Medical Association, the Minnesota State Medical Association, the American Medical Association and the Ramsey County Medical Society. He kept abreast of his profession by reading, frequent clinical trips and postgraduate courses. After 1907 he began to give special attention to ophthalmology, otology, laryngology and rhinology and, after 1922, to urology.

A handsome, kindly, genial man, well trained and responsible, Dr. Russell as physician and citizen held the respect and regard of the communities in which he lived. In Stewartville he was for several years a member of the board of education, was president of the village council, and served a term as mayor. He was a member of the Masonic Lodge of Stewartville and of the Shrine of St. Paul and of Chicago. A reader of the best in literature, he held intelligent opinions on the wide range of subjects in which he was interested and was an entertaining conversationalist. His recreations were raising flowers and fishing; in his later years he became interested in raising guppies and other tropical aquarium fish, and locally was recognized as an authority on the subject.

Herman R. Russell was first married on June 11, 1900, to Hannah Lucille Manion, one of the eight children of Mr. and Mrs. Owen Manion, of Eyota, pioneer Irish citizens of Olmsted County. Mrs. Russell, an able educator, had been a teacher in the Stewartville schools. There were two children of the marriage, Patrice and Owen. Mrs. Russell died in Cherokee Hights on December 2, 1926. Dr. Russell's second marriage, on February 14, 1929, was to Martha S. Schumann, a trained nurse, a graduate of St. Mary's Hospital School of Nurses Training, in Rochester, and one of the eight children of Mr. and Mrs. Adolph Schumann, natives of Germany, who from 1884 were well-known citizens of Stewartville and community.

On June 29, 1932, at the age of sixty-one years, Herman R. Russell died at St. Luke's Hospital, St. Paul, after a short illness from cardiac disease. Burial was in Acacia Park Masonic Cemetery at Pilot Mound, St. Paul. He was survived by his wife, his son and his daughter, Mrs. John Lindamann, both of Minneapolis, and his mother, who was a member of his household; Mrs. C. W. Russell died in Cherokee Heights on May 17, 1935. In 1947 Mrs. H. R. Russell continued to make her home in Cherokee Heights, Mrs. Lindamann was in Minneapolis, and Owen Russell in California.

Reuben Nathaniel Sackett (1825-1920), a man of fine character, a member of the regular school of medicine, it is said, and one of the first three physicians of Olmsted County, settled at Quincy Mills, Quincy Township, in May, 1855. His Christian names and their initials have appeared variously: Reuben Nathaniel, R. N., Nathaniel R., Reuben, and Nathaniel. In the writer's article on early decades of medicine in Fillmore County, notes on Dr. Sackett appeared in a biographical sketch of his son, Dr. Jay Le Roy Sackett (1858?-1890), who served his brief professional career in Lenora. The essential data about Dr. R. N. Sackett are repeated here.

Reuben N. Sackett was born on December 8, 1825, in Chautauqua County, New York. He obtained his general education and his medical training in his native state and began his medical practice in Syracuse. In May, 1855, as stated, he settled in Olmsted County, Minnesota, accompanied by his wife, Julia A. Palmer Sackett, to whom he was married in New York State on August 11, 1854. In Quincy Mills and a widespread surrounding community Dr. Sackett experienced the arduous medical and surgical practice of the time, giving faithful and generous service to the scattered pioneer families. Between 1865 and 1868 he was resident in near-by St. Charles, Winona County; for a short time thereafter in Chatfield, Fillmore County; and subsequently for many years, first in Windom, Cottonwood County, and second in Janesville, Waseca County (as late as 1909). Dr. Sackett was active in the Masonic order and as a charter member helped to organize lodges at St. Charles, Windom and Janesville. For more than seventy years he and his wife were supporting members of the Methodist Episcopal Church.

Dr. and Mrs. Sackett were the parents of three children, born at Quincy Mills: Nettie became the wife of A. G. Chapman, a lawyer of Lanesboro; a son of Mr. and Mrs. Chapman was the late C. A. Chapman, a banker of Rochester; a surviving daughter (1946) was Mrs. B. J. Morey, of Lanesboro. Jay Le Roy Sackett, M.D., died early in his career; Zilpha Estell died in infancy.

This pioneer physician and his wife spent their last years with their daughter in Lanesboro. Julia Palmer Sackett died on November 21, 1914; Reuben Nathaniel Sackett, on December 20, 1920, at the age of ninety-five years, from the infirmities of age. Their graves are in the Lanesboro Cemetery.

Orin W. Sadler (1843-1929), who was born at Waukegan, Illinois, was the son of Mr. and Mrs. William Dexter Sadler. He was graduated from the Chicago Medical College in 1868 and probably in the same year began his initial practice in southern Minnesota. Eckman and Bigelow, in their article on the history of medicine in Dodge County, included him, as of West Concord, in their roster of pioneer physicians. Although Dr. Sadler lived for a considerable time in Dodge County and is known to have practiced in Wabasha, Wabasha County, and in Winona, Winona County, it has been established, on information from his niece, Mrs. J. A. Fiegel, of Rochester, that for a period he had his home in Byron, Olmsted County, and that during all his seven years in Minnesota he practiced to some extent in this county. Mrs. Fiegel was Ella Mary Vosburgh, whose parents, John Sharon Vosburgh and Mary Belinda Sadler Vosburgh, a sister of Orin W. Sadler, came by wagon from Wisconsin to Winona County, Minnesota, and thence, in 1856, to Salem Corners, Olmsted County.

Dr. Sadler was the first physician in Dodge County to become a member of the Minnesota State Medical Society, elected to membership at a session in Owatonna in 1869; his name remained on the roster through 1875. Once, at least, he assisted the Drs. Cross of Rochester in a surgical operation; he consulted with Drs. Garver and Willson of Dodge County in a case of insanity; and was a county physician in Dodge County.

He was married about 1870 to Emma Josephine Slocum, of Mantorville, Dodge County, a daughter of George W. Slocum and Rhoda C. Mantor Slocum, and a sister of Dr. Julius Franklin Slocum, who served his honorable but brief professional career in Marion, Olmsted County, in the early seventies. Dr. and Mrs. Sadler had four children, George, who died in infancy at Mantorville, Lucy, Orin and Samuel.

When Dr. Sadler left Minnesota early in 1875, he settled in Philadelphia, where he practiced into 1890; he was licensed in Pennsylvania in 1881. From 1890 until after 1907 he was in Pittsburgh; for the next few years in Johnstown. From 1913 for about twelve years he was resident in Mt. Dora, Florida, and briefly thereafter in Tarpon Springs. Dr. and Mrs. Sadler occasionally returned on visits to Minnesota: in 1875 in Mantorville, where the doctor, "an eminent oculist," at the Bradley House performed operations for crossed eyes, and again in 1879. In 1890 Mrs. Sadler with one child came to Mantorville and in 1894 with the three children she visited at the Fiegel home in Salem Township. After her death, in the early nineteen hundreds, it is believed, Dr. Sadler remarried; in 1916, accompanied by his wife, he visited in Rochester.

Dr. Sadler died of arteriosclerosis in Tarpon Springs, Florida, on January 2, 1929, at the age of eighty-five years, survived by his wife (who died in 1940) and his children. His son Orin, it is said, was a physician.

(To be continued in the July issue.)

President's Letter

THE ANNUAL MEETING, 1951

IN RETROSPECT, one has the feeling that the annual meeting of the Minnesota State Medical Association this year was an unqualified success. This was made possible in great part by the fine functioning of the various committees on arrangements, program, et cetera. Everything went on well and according to schedule. The Executive Secretary and his corps had everything under control and contributed very much toward making the meeting run smoothly. The meetings were well attended and the various addresses and demonstrations were excellent. The round table discussions were especially fine this year, from the point of view of teaching and discussion. Registrations were high, and many physicians from outside the state were present.

A very happy circumstance, always, is the renewal of friendships between physicians and former teachers, and between the members of the different classes. Many new acquaintances are made and old friendships renewed. It would seem that this is good, as it favors a united body of members of the profession. A dinner meeting of members of Minnesota Medical Foundation, Minnesota Medical Alumni, was well attended. Such meetings will continue to be held at the time of the State Medical meeting. The various specialty groups had their separate sectional meetings.

An outstanding number on the program, among other excellent numbers, was the symposium on new drugs—particularly the discussions on ACTH and cortisone. At the banquet, the members of the profession were very happy to hear the informative discussion presented by Dr. John W. Cline, San Francisco, California, President-elect of the American Medical Association.

The city of Rochester has one characteristic which should be mentioned—the universal spirit of helpfulness everywhere, whether in hotel, store, or the citizen on the street. This smiling courtesy helped to make the visit of the Association a pleasant one to be remembered.

We shall look forward to seeing you in Minneapolis next year.

J. F. Norman

President, Minnesota State Medical Association

◆ Editorial ◆

Carl B. Drake, M.D., *Editor;* George Earl, M.D., Henry L. Ulrich, M.D., *Associate Editors*

CHOLESTEROL AND ATHEROSCLEROSIS

FOR MANY YEARS it has been known that cholesterol is one of the substances in atheromatous plaques of sclerotic arteries. While the physiology and pathology of cholesterol metabolism is not thoroughly understood, some facts are known. Cholesterol is an essential constitutent of body cells and fluids. It has an extrinsic origin from ingested animal fat (meat fat, egg yolk, butter, cream, etc.). It also is formed intrinsically in the liver, is a component of bile and facilitates the absorption of fatty acids.

Cholesterol is a normal constitutent of the blood. Its level in the blood is fairly constant for the individual but has a tendency to be slightly higher as age advances. It is higher in uncontrolled diabetes, obstructive jaundice, hypothyroidism and nephrosis and is reduced in severe liver disease, hyperthyroidism and certain febrile diseases.

It has also been known for many years that cholesterol feeding of rabbits will produce a hypercholesteremia and atherosclerosis. A natural conclusion was that the excessive ingestion of fat might be the cause of atherosclerosis in man, not laying much emphasis on the fact that the rabbit is herbivorous and cholesterol feeding does not produce hypercholesteremia or atherosclerosis in carnivorous animals. Man is omnivorous and there is little reason to infer that he will react like a herbivorous animal in this respect. But does he?

Reports are conflicting. Some have found that enormous amounts of ingested cholesterol results in only slight elevation of the serum cholesterol, most of it being eliminated in the stool. An automatic adjustment whereby when much cholesterol is available in the food, less is manufactured by the liver, has been reported. Keys has found little correlation between the cholesterol ingested and cholesterol blood levels. However on cholesterol-free and fat-free diets, steady and rapid decline in serum cholesterol was consistently noted. In one patient on a cholesterol- and fat-free diet the addition of vegetable fat raised the serum cholesterol to previous heights. This suggests that cholesterol can be formed from other than animal fat, which is contrary to the general opinion. Further, many individuals with hypercholesteremia fail to show signs of atherosclerosis and likewise many with atherosclerosis fail to have an elevated serum cholesterol. Reports of cholesterol levels in the blood in individuals with coronary disease are not consistent. Those with histories of recent coronary infarction fail to present elevated blood cholesterol consistently.

Gofman who has interested himself in this relationship between fat and cholesterol in the diet and atherosclerosis explains this inconsistency in this way. By means of ultracentrifugation of blood he has studied quantitatively the entire spectrum of lipid and lipoprotein components in the serum. One layer of the lipoprotein molecule he finds consistently increased in recent coronary thrombosis and in those likely to suffer from a coronary attack. Moderate reduction of the fat and cholesterol in the diet is reflected by this test whereas the cholesterol level is not consistently lowered as recorded by the usual tests. This justifies his belief that a moderate reduction in the fat and cholesterol in the diet is effective in the treatment of atherosclerosis and that a total elimination of fat and cholesterol in the diet is not essential.

It seems essential that Gofman's tests with the ultracentrifugation of blood should be checked. Gofman's reports, along with the reasonableness of the recommendation of a reduction in animal fat as a preventive of atherosclerosis, has led many physicians to recommend the reduction or elimination of this type of fat and cholesterol in the diet. A most complete book of instructions for patients and diets has appeared.* All this may be a bit premature. It is well known, however, that in China, Costa Rica and Okinawa where the diets are largely vegetable, little atherosclerosis exists. Life insurance companies know the hazard of overweight. A reduction in overweight at any age is good advice. The question however has not been settled whether a moderate reduction of fat in the diet is sufficient or whether a vegetarian diet is necessary to reduce the elements in the blood that are responsible for atherosclerosis and its dire consequences.

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*Dobbin, E. Virginia; Gofman, Helen F.; Jones, Helen C.; Lyon, Lenore and Young, Clara-Beth: The low fat, low cholesterol diet. New York: Doubleday and Company, 1951.

The part choline administration will assume in the treatment of atherosclerosis remains to be established. It has been shown to be of value in slowing and reversing the atheromatous process produced in rabbits. Investigators have reported an improved mortality in coronary thrombosis patients by the administration of choline. Choline and a reduction in animal fats in the diet seem to be the best the profession has at present to offer in the treatment of atherosclerosis. Time will establish the value of the offering.

FINANCIAL RELIEF FOR MEDICAL SCHOOLS

THE COMMISSION on Financing Higher Education is an independent body sponsored by the Association of American Universities and financed by grants from the Rockefeller Foundation and the Carnegie Corporation. It is engaged in a long-range study of the financial problems of American colleges and universities. A statement put out by the Commission on May 16, 1951, on the subject of Financing Medical Education is succinct and to the point. The Commission does not favor federal subsidy of higher education in our country. If medical education should be directly subsidized there is every reason why other educational programs might also wish or demand support. The Commission believes "such a course would be dangerous to the intellectual heritage of freedom and diversity which characterizes American higher education." We agree.

The medical schools, however, are facing a critical financial problem. About an equal number of the seventy-two four-year medical schools of the country are units of public and private universities. The medical school has the most expensive course per student in any university.

The Commission, in its recent report, has offered certain suggestions to meet the present financial dilemma. It does not believe that an increase in tuition should be made. The tuition is already the highest of any undergraduate or postgraduate department. The medical course, too, is the longest in all professional schools, which makes the medical course by far the most expensive of all departments. The Commission believes that certain economies may well be practiced in medical schools. It mentions too many courses, overlapping of courses and duplication of effort. We have thought for some time that the present-day medical course contains instruction that might well be deferred for the training of specialists. Inasmuch as accredited medical schools must operate with a teaching hospital and clinical facilities, medical instructional budgets often have a large amount of community service costs hidden within them. On the other hand, to our knowledge medical schools are in some instances relieved of expense by the contribution of clinical material and staff gratis by city hospitals. City hospitals, too, in some instances pay interns and residents while they are technically enrolled in a medical school. The Commission calls attention to the high cost of medical research. Some foundations and corporations which contribute funds for research fail to provide for the indirect costs of the research which only add to the budget of the medical school.

Even if all the suggested economies and adjustments are made, the medical schools still will need help and a lot of it. The seventy-two medical schools required 70 million dollars to operate in 1950. It is estimated they need an additional 10 million a year to continue operating on their present basis.

As mentioned in an editorial which appeared in our January issue, the AMA House of Delegates at Cleveland last December approved the appropriation of $500,000 to establish the American Medical Education Foundation for the support of the medical schools. The California State Medical Association added $100,000 and the members of the profession were invited, yes urged, to contribute $100 per member. If every physician contributed his $100, some 18 million dollars would be raised and the problem solved. Pitifully few Minnesota doctors made a contribution. Doubtless, most felt the futility of the doctors of the country attempting to contribute a fund sufficient to maintain the medical schools in the black. The medical schools would need financial assistance from a wider field than just the medical profession. This has now happened. A National Fund for Medical Education has been established with the sponsorship of industry, organized labor, agriculture, a group of university presidents, twelve scientific and educational foundations, as well as the medical profession. The goal for 1951 is 5 million dollars, one million of which has already been collected. Contributions to the American Medical Education Foundation are to be funneled to this new National Fund for Medical Education. Those of us who can possibly afford to make a contribution of $100, or even less, should do so. Contributions should be sent to the American Medical Education Foundation at AMA headquarters. Any contributions are deductible from Federal income tax returns.

BARUCH COMMITTEE TERMINATED

THAT MONEY can be the means of accomplishing much good is illustrated by the accomplishment of the Baruch Committee on Physical Medicine and Rehabilitation. The committee was established by Bernard M. Baruch of New York City to develop the field of medicine devoted to the diagnosis and treatment of disease by physical means and to the rehabilitation of disabled persons. Mr. Baruch has donated over 2 million dollars personally to the support of this branch of healing in honor of his father, the late Dr. Simon Baruch, who was the leading medical pioneer in this field.

As a result of the activities of this committee, there has been a marked increase in the teaching of physical medicine in the medical schools of the country; there has been a great increase in the number of residencies in physical medicine in the hospitals; thousands of wounded soldiers and sailors as well a injured civilians have been rehabilitated; a new Section on Physical Medicine and Rehabilitation has been formed in the AMA; the American Board of Physical Medicine and Rehabilitation to certify specialists in this field has been established.

Dr. Ray Lyman Wilbur provided remarkable leadership in the organization of the work of the committee until his death in June, 1949. Dr. Frank H. Krusen of Rochester, who has been carrying on in Dr. Wilbur's place, announced last month that the committee has achieved its goal and is discontinuing its activities. The committee is dead. Long will live the results of its existence.

NATIONAL DOCTORS COMMITTEE FOR IMPROVED FEDERAL MEDICAL SERVICE

DR. ROBERT COLLIER PAGE is chairman of the National Doctors Committee for Improved Federal Medical Service. An advisory committee of experts from every branch of the medical profession has been appointed to consult with the chairman of the committee on matters of policy. Dr. Page is the Medical Director of Standard Oil Company of New Jersey.

The National Doctors Committee is an affiliate of the Citizens Committee for the Hoover Report which is urging the passage of the recommendations of the bipartisan Hoover Commission for the unification of the various governmental medical agencies under a single authority. The slogan of the Doctors Committee is: "Not more government in medicine but better medicine in government." Economy is one of the main objectives of the committee.

It will be recollected that the task force of the Hoover Committee recommended that federal governmental medical activities, except the army and navy hospitals, be organized as one unit with a trained medical man at the head holding a cabinet position; and that this branch of the federal government be not combined with the Department of Social Security and Education with a layman at the head as urged and almost accomplished by Oscar Ewing.

The saving in Federal spending which would be accomplished by the unification of these governmental medical activities would be considerable.

When the use of anesthetics was first introduced in England, the clergy, almost without exception, denounced it, saying the Lord wanted us to suffer and doctors had no right to make patients unconscious and free from pain. A young Scotch doctor advised clergymen to read in Genesis how "The Lord caused a deep sleep to fall upon Adam" before he took out his rib.

Medical Economics

Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association
George Earl, M.D., Chairman

AMA PRESIDENT SCORES AGAINST EWING

A few well-chosen, forceful words were aimed recently at Oscar Ewing by AMA president, Dr. Elmer Henderson. Dr. Henderson expressed the view of American doctors, and went on to repudiate Ewing's statements with such adeptness that it is doubtful whether the Federal Security Agency will ever attempt a similar tactic.

Dr. Henderson had quoted a "current" FSA pamphlet which said:

> "Social security and public assistance programs are a basic essential for attainment of the socialized state envisaged in democratic ideology, a way of life which so far has been realized only in slight measure."

Speaking for the Federal Security Agency, and characteristically hedging to avoid the issue, Ewing denied the currency of the pamphlet:

> ". . . Elementary check would have revealed that pamphlet was written and issued in 1945, some two years before I became Federal Security Administrator. Checking would also have revealed that this pamphlet is not being currently distributed by Federal Security Agency, and has never had remotest authority as directive."

Actual proof of the pamphlet's currency was then presented by Dr. Henderson, with appropriate comments as an added flourish:

> "We note your denial of responsibility for the pamphlet on the grounds that it was published in 1945 before your tenure as administrator of that office. This denial, as you request, will be duly reported in The Journal. You are correct in assuming that as a reputable scientific periodical it is the habit of this journal to verify statements before publication. The facts concerning my reference are these.
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> "The pamphlet in question was reprinted for distribution by your office in 1949, when the public record indicates you were in charge of the Federal Security Agency, its publications and its directives to employes. Five copies were received in the mail here last week, which indicates certain currency still. These all carry the imprint, 'Government Printing Office, 1949.' The fact that the report was first printed in 1945 would not seem to alter the further fact that you apparently have thought well enough of it to have it reprinted in 1949."

Ewing had prematurely requested *The Journal of the American Medical Association* to retract its quotation from the FSA pamphlet, "as publicly as it was made in the first place." After proving himself correct, and publicly telling Mr. Ewing so, Dr. Henderson went on to give Ewing some well-deserved advice:

> "We would suggest that if you wish at this time to disavow the principles expressed in the pamphlet, you will wish to do so in a formal statement to Congress, for as recently as February 26 of this year, it was protested on the floor of Congress as grave misuse of taxpayers' money to disseminate wholly un-American philosophies."

A final jab at Ewing and his flagrant denial of fact, is taken by Dr. Henderson:

> "In case it was without your knowledge that your office was reprinting and distributing such un-American directives during your tenure, you may wish to issue a public statement disclaiming responsibility for the material. If so, we shall certainly be glad to be helpful in giving such a statement further distribution through The Journal, for the medical profession will be sincerely interested in any such action."

NEW FUND PLAN TO AID MEDICAL SCHOOLS

Financial assistance for all the nation's hard-pressed medical schools was promised recently in the establishment of the National Fund for Medical Education. The Fund, representing the culmination of two years of planning and organization, has the sponsorship of industry, the medical profession, organized labor, agriculture, a group of university presidents and twelve scientific and educational foundations.

The Fund has more than $1,000,000 to start it on its $5,000,000 goal for the first year. The American Medical Education Foundation, begun by the American Medical Association last December, will funnel all its contributions from doctors through the new organization. The National Fund plans to make these and other grants available immediately to the nation's medical schools.

Already machinery is set up to distribute the money equitably among the medical schools of the country. Guidance was gained by the Fund's Advisory Council, including university presidents, representatives of the AMA, the Association of American Medical Colleges and medical directors of leading philanthropic foundations.

Although no one claims that provision of $5,000,000 annually will completely solve the budgetary problems of America's fine medical schools, there is, at the same time, a feeling that the National Fund represents concerted efforts of a group of Americans earnestly trying to solve a problem that they know will affect this country in many ways. Chief objective of the Fund is to seek voluntary contributions—a characteristic American way of doing things.

In announcing the plan at the sponsoring group's annual meeting, S. Sloan Colt, Fund president, said, "What is most gratifying and significant is the fact that this vital project has brought together as trustees a broadly representative group of men and women. Those who organized the Fund may have differing social viewpoints but, insofar as the Fund is concerned, we have united in an endeavor to solve a serious problem for the common good. Unless the medical schools are given financial help, and given it quickly, the standards of medicine may be permanently impaired and the nation's health affected adversely."

BRITISH HEALTH SERVICE HEADS TOWARD BANKRUPTCY

Full-fledged bankruptcy of the British Health Service is now clearly and coldly foreseen by the British Medical association. Many people in a position to observe the situation objectively have wondered why bankruptcy has not come sooner. Expressing discontent and disillusionment, a recent *British Medical Journal* says:

> "The medical profession is discontented and disillusioned, not because of payment, or lack of it, for this or that, but because it sees postponed indefinitely the opportunities for improving the medical care of people. . . ."

Through all its struggling to maintain high medical standards under a hopelessly inefficient system, the British medical profession has not lost sight of its basic principle—improving medical services to the people—but realization of this goal is receding fast, under the pressure of a top-heavy, structurally unsound program of medical care.

The editorial in the *British Medical Journal* explains to its readers the main reasons for failure of the medical scheme:

> "Not only are we facing bankruptcy because of the Utopian finances of the Welfare State. We are, as a profession, facing the bankruptcy of a policy based on the decisions of the Coalition Government during a war for survival and put into execution by a Minister of Health who could not resist the temptation to behave like a Fairy Godmother to an impoverished nation. . . .
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> "The honeymoon period of the Welfare State is over. The uneasy marriage between the medical profession and the State is now undergoing the strains of an unbalanced domestic economy . . . the public has run riot in the chemist's shop—at what a cost it is only just beginning to discover. The shocking waste of public money over the inessentials of medicine has left little over for what is more urgently needed. . . ."

ASSOCIATION SETS UP RURAL MEDICAL SCHOLARSHIP

A rural medical student scholarship, designed to promote even better distribution of physicians throughout the state, was approved by the House of Delegates of the Minnesota State Medical Association at the annual meeting in Rochester, April 30, May 1 and 2.

Dr. F. J. Elias, Duluth, chairman of the Committee on University Relations, submitted the plan to the delegates. He presented the purpose of such a scholarship as follows:

> "In the first place, it is the distinct effort on the part of organized medicine to solve one immediate, fundamental social problem, the distribution of physicians. This primary purpose is to be accomplished by providing financial aid in the form of a scholarship to at least one new medical student a year, who agrees to engage in general practice in a town of 5,000 population or less for a period of at least five years."

The new plan provides $1,000 a year for four years to a beginning medical student from a small town or rural area. Eligibility depends on three factors: financial need; residence in a rural area or town of less than 5,000 population; and an agreement to engage in general practice in a town of the student's selection from a list furnished by the state medical association and the Minnesota State Board of Medical Examiners.

Minneapolis Surgical Society

Meeting of October 5, 1950

The President, Harvey Nelson, M.D., in the Chair

PRIMARY OSTEOTOMY FOR THE TREATMENT OF INTRACAPSULAR FRACTURE OF THE NECK OF THE FEMUR

MAYNARD C. NELSON, M.D.
Minneapolis, Minnesota

The all too frequent occurrence of non-union of intracapsular fractures of the neck of the femur is well known. In reviewing these fractures at the Minneapolis General Hospital, we were impressed by the number of patients with non-union, even though their fractures in a majority of cases had been accurately reduced and internally fixed properly. Because of this and because of the frequent necessity of multiple operations to obtain a stable hip, we began to wonder if our initial approach to the problem was correct. It was thought that perhaps some procedure combining the advantages of internal fixation and those of secondary operations for non-union could be used to advantage in the treatment of fresh intracapsular fractures. Therefore the different operative procedures devised for the treatment or prevention of non-union of intracapsular fractures were investigated. The chief aims of these procedures are to restore stability to the hip, to diminish pain, and to restore a variable degree of muscular control about the hip joint.

Whitman[15] recommended his reconstruction operation for the treatment of ununited intracapsular fractures with considerable neck absorption. The head of the femur is removed and the greater trochanter with its attached muscles is cut off obliquely. The stump of the neck thus created is placed into the acetabulum and the limb is abducted twenty-five degrees. The trochanter is then secured more distally on the lateral aspect of the femur to restore the normal distance between the origin and insertion of the abductor muscles. A hip spica is used.

Albee[1] cited non-union and aseptic necrosis of the head as indications for the use of his reconstruction operation. As in the Whitman operation the head is removed and the neck stump placed into the acetabulum. A bone-muscle lever about four inches long is then cut from the trochanter and upper femoral shaft to restore ability to abduct the hip. Here again a hip spica is used.

Colonna[5] listed non-union with complete absorption of the neck as the indication for use of his reconstruction operation. The head of the femur is removed and the muscles inserting on the greater trochanter are severed close to the bone. Then the greater trochanter is placed into the acetabulum and the severed abductor muscles are fastened distally on the femur. Here too a spica cast is used.

The Brackett[3] operation is recommended for use in treating cases of non-union with almost complete absorption of the neck and with aseptic necrosis of the head. In this operation the neck stump is rounded off and placed into the scooped out head. The abductor muscles with a shell of bone are severed from the greater trochanter and reimplanted distally on the femur. As in the previous procedures a hip spica is used.

Use of the Luck[9] reconstruction operation is contraindicated when there is a dead or disintegrated head or when disabling arthritic changes are present in the hip joint. In this procedure the femur is cut transversely at the level of the lower border of the neck; the fracture surface of the head is freshened; and the head is then placed on top of the denuded upper femoral shaft. The trochanter with its attached muscles is placed lower on the lateral aspect of the femoral shaft and a Steinman pin inserted through the trochanter and shaft into the head. If this fixation is not secure, a plaster spica is applied.

The osteotomy of von Baeyer[14] and Lorenz[8] is of the linear type (bifurcation). The cut begins low on the lateral aspect of the femur and ends medially above. It is situated entirely below the lesser trochanter. The lower femoral fragment is then forced up against the acetabulum and the two sections of the femur approximated by abduction of the extremity. Stability of the hip is restored by the pelvic support obtained through the medial bony spur and power of abduction is regained through increased tension of the gluteal muscles.

The osteotomy described by McMurray[10] is an oblique or linear osteotomy which begins laterally at the level of the lower margin of the lesser trochanter and extends upwards and medially to end at the level of the upper margin of the lesser trochanter. After the cut is made the leg is abducted and the femoral shaft displaced medially under the head. Because of muscle attachments common to both osteotomy segments, this medial shift of the distal fragment produces adduction-rotation of the proximal fragment. A more horizontal fracture plane with diminution of shearing force results. A plaster hip spica is used for immobilization. Because old ununited femoral neck fractures were treated by this method with a high degree of success, McMurray[11] and Murphy[12] used it for the treatment of fresh intracapsular fractures.

The cervical-axial osteotomy of Leadbetter[6] differs from the McMurray procedure in that the osteotomy is made within the capsule of the hip joint at the junction of the middle and lower thirds of the long axis of the neck. Posterior displacement of the distal fragment is thereby prevented. After the bone is sectioned, the femur is then forced medially and the head rotated so as to lie with its fracture surface on the freshly cut neck. A plaster hip spica is used for immobilization.

The Blount[2] osteotomy is similar to the McMurray procedure except that it is done at the level of the lesser trochanter to allow more adduction rotation of the proximal fragment. The distal fragment is not completely displaced medially. The osteotomy is fixed by means of a blade-plate to obviate the necessity of using a cast.

Pauwels,[13] in 1929, described a wedging type of osteotomy based on the results of his studies of the various forces of pressure, shearing and tension that exist at a fracture site in the neck of the femur. A vertical force exerted on the head of the femur in a femoral neck fracture was thought by Pauwels to be divided into a pressure and a shearing component. He felt that the course of healing of the fracture is determined by which of these forces predominates and showed that shearing force first becomes effective when the fracture is more than 30 degrees off the horizontal plane. As the angle increases, the pressure component decreases and shearing effect increases. The wedge, in Pauwels' operation, is removed just below the lesser trochanter and is of sufficient size to reduce the fracture angle to less than 30 degrees off the horizontal plane.

Camitz,[4] in 1931, recommended the use of an osteotomy with a wedge, two centimeters wide at its base, removed at the level of the lesser trochanter for the treatment of non-union. Linton,[7] between 1939 and 1941, performed wedge osteotomies on four cases of recent intracapsular fractures in which the prognosis for healing was considered bad due to pronounced obliquity of the fracture plane. Linton is the first author on record to recommend the use of wedging osteotomy combined with internal fixation of the fracture site. He advocated a Smith-Petersen nail for this purpose. However, both he and Camitz used spica casts for immobilization.

After investigating the above procedures, it was felt that perhaps internal fixation of the fracture combined with a wedging type of osteotomy (described by Pauwels,[13] used as a primary procedure by Linton,[7] and used by Moe for non-union) would be most likely to accomplish our aim to find a single procedure which could be used for the treatment of fresh intracapsular fractures of the femur and which might result more frequently in primary union. With the hope that this theory might be proved, the first of a series of fifty-two of these procedures was carried out at the Minneapolis General Hospital on October 1, 1946. This was done by Dr. Frank J. Ankner, senior resident in surgery at the Minneapolis General Hospital. Dr. Ankner also either performed or personally supervised the great majority of these operations as partial fulfillment of the requirements for his Ph.D. thesis.

Discussion of the Proposed Osteotomy

In selecting the exact type of osteotomy to be used, two main problems arose: (1) the size, position and shape of the wedge, and (2) a method of internal fixation of both the fracture and the osteotomy which would obviate the use of a plaster hip spica.

The Wedge.—The problem of the size of the wedge was first considered. It was decided that sufficient bone should be removed so that the final result would be a head, neck and shaft in a straight line. Calculations to determine the measurements of the wedge proved to be indefinite and actual trials at operation were necessary. The size of the wedge was increased in successive cases until it was determined that closure of a defect left by the removal of a wedge with a base of one inch, *when removed at the level of the lesser trochanter,* results in the head being in a direct vertical line with the shaft of the femur. It was further found that closure of such a defect causes the femoral fragment proximal to the osteotomy to rotate 40 degrees toward the vertical. Because a similar change in the fracture plane takes place with any change in the position of the neck, even the most oblique or vertical fracture line will not remain over 50 degrees off the horizontal plane after a rotational shift of 40 degrees. According to Pauwels[13] and Blount[2] reduction of the plane of a femoral neck fracture to less than 50 degress off the horizontal plane reduces shearing force enough so that a high rate of union may be expected.

The wedge was first cut according to the technique previously used by Moe in secondary osteotomies for the treatment of non-union of intracapsular fractures. The upper line of the wedge was cut perpendicular to the shaft of the femur, and the lower line extended inferiorly and laterally from the apex of the wedge. Closure of such a defect resulted in a markedly oblique osteotomy line. In order to produce an osteotomy with no shearing effect at its site, the wedge was reversed. The end result then was a horizontal osteotomy line.

The Fixation.—For fixation a method devised by Moe for use in secondary osteotomies was modified for use in this osteotomy. The Moe plate has a curved portion to fit the trochanter and a shaft which fits against the shaft of the femur. With the curved portion in place, the shaft portion protrudes about 25 degrees from the femur before closure of the osteotomy defect. This was modified so that now this angle is 40 degrees. There are three holes in the curved portion through which hip screws can be inserted for fixation of the fracture. To adapt the plate for use in this osteotomy, it was necessary to cut off the part containing the top hole and to drill a new hole immediately adjacent to the osteotomy site.

The Question of Early Ambulation

It was felt that perhaps early partial weight bearing before healing of the fracture could be permitted and so avoid later difficulties with reambulation of these patients. The possibility that early weight bearing might cause collapse of an avascular head was recognized, but due to the rotation of the head after osteotomy the superior aspect of the head, which is so prone to collapse due to its late revascularization, does not bear the brunt of the trauma. Instead, the area near the fovea, which usually remains viable in a dead head, is rotated superiorly to form the weight-bearing surface. At first alternate patients were allowed early partial weight bearing. Later only those with a fracture line less than thirty degrees off the horizontal plane after operation were put on this regimen.

Selection of Patient

At first it was decided to use this operation for all patients with an intracapsular fracture. Later, only those patients whose fracture lines were fifty or more degrees off the horizontal plane and in whom, therefore, a high incidence of non-union was anticipated were selected for osteotomy.

The Technique of Treatment of Intracapsular Fracture by Primary Osteotomy

The details of treatment will be discussed briefly. On admission the patient is adequately sedated and x-rays are obtained. Adhesive-type traction with ten pounds of weight is applied to the injured extremity. In the pre-operative period the usual clinical and laboratory evaluations of the patient are made.

For the operation general anesthesia is used. Reduction is obtained by either the Leadbetter maneuver or the table-traction method. The angle of the fracture line is measured on the antero-posterior x-ray of the hip in full internal rotation.

This is done in the manner of Linton[7] in which a horizontal line is drawn perpendicular to the shaft of the femur so as to cross a line through the fracture. This allows measurement of the number of degrees that the fracture is off the horizontal plane.

A lateral incision is used. The modified Moe plate is held in place on the trochanter and the shaft bent to the proper angle. Kirschner wires are then inserted through the holes of the plate into the neck and head of the femur and x-rays obtained. With these x-rays for guidance, three hip screws of proper length are inserted into the desired positions. A wedge of bone with a base of one inch is removed from the femur starting at the level that the shaft of the plate diverges from the femur. The superior cut is diagonal and the inferior is horizontal. The bone removed is cut into small pieces and inserted into the medullary cavity at the osteotomy site. The wedge defect is then closed by abduction of the limb. Rotation is prevented by lining up marks made on the bone above and below the osteotomy before the wedge is removed. The shaft of the plate is now affixed to the shaft of the femur by small screws.

Postoperatively the patient is again placed in adhesive-type traction with ten pounds of weight for five days to alleviate the pain due to muscle spasm produced by the trauma of surgery. After this all patients are made ambulatory as soon as possible.

Analysis of Cases and Results Obtained

The first of fifty-two primary osteotomies for the treatment of fresh intracapsular fractures of the neck of the femur was done at Minneapolis General Hospital on October 1, 1946, and the last on September 24, 1948. Results in these patients were studied up to January 28, 1949. Those patients operated upon in the last six months of this period were excluded from the study leaving forty-five for final evaluation. Because insufficient time has elapsed the data to be presented are given as primary and not final end results.

Age.—The average age of the forty-five patients studied was 71.7 years. Ninety-three per cent were sixty or more years of age and 60 per cent were seventy or more years of age.

Mortality.—The operative mortality was one patient in forty-five (2.2 per cent). This patient died on the fourth postoperative day of a cerebrovascular accident.

The hospital mortality was three patients in forty-five (6.7 per cent). The fracture, not the surgery, was regarded as a contributory factor in these deaths. Two of these patients were eighty-four years old and the other eighty-five. One had carcinoma of the prostate with bone metastases; the other two were totally demented and required constant restraint. These patients died eleven, thirty-seven, and fifty-one days after surgery of bronchopneumonia.

The incidental mortality was eight patients in forty-five (17.8 per cent). All died after leaving the hospital from causes unrelated to their fractures. They ranged from seventy-four to eighty-two years of age. The time of death was from two to eighteen months after injury.

The total mortality, therefore, was twelve patients in forty-five (26.7 per cent). The average age of the patients who were living was 69.4 years, while those who died averaged 78 years of age.

Postoperative Complications.—The postoperative complications were severe in a few instances and minor in others. One patient developed a huge ulcer on the dorsum of the foot from the pressure of the straps used to secure the extremity to the table. Another patient developed popliteal artery thrombosis. Both required amputation. Stitch abscesses in two instances were the only wound infections. In one of the early cases in which the original Moe plate was fixed with only two screws extending through the plate and across the fracture site, disruption occurred at the osteotomy site. A violent mental patient who walked about in her room postoperatively on several occasions completely disrupted both fracture and osteotomy sites.

X-Ray Analysis of the Fractures.—There were thirty-two of the forty-five patients for evaluation of their primary end results since twelve had died and one was not followed. All thirty-two patients were x-rayed and were personally examined at the end of the study period by a team of three doctors under the direct supervision of Dr. Frank J. Ankner.

The important aspect of the preoperative analysis of the x-rays was the measurement of the angle of the fracture line. The fracture lines in two patients were too irregular to measure. In one early case there was a fracture angle of 38 degrees. The remaining twenty-nine patients all had fracture lines 50 degrees or more off the horizontal plane. The average fracture angle in these thirty patients was 61 degrees.

Twenty-seven of the patients had satisfactory and five had unsatisfactory reductions of their fractures. In three of the cases with unsatisfactory reductions, non-union resulted.

In two patients with non-union and severe neck erosion, the fixation screws backed out to such an extent that their removal was necessary.

Moderately severe arthritis of the hip joint developed in two patients who obtained union of their fractures, but had unsatisfactory functional results due to pain.

Aseptic necrosis was difficult to evaluate or grade. Ten patients showed some degree of necrosis but seven of these were quite minimal and consisted of only occasional cystic areas and sometimes very slight irregularity of the head but no flattening or collapse. This gave a "clinical degree" of aseptic necrosis in three out of thirty-two patients. Two of these had non-union and one had union at the fracture site.

Ten patients showed moderate to severe femoral neck erosion (absorption of one-half or more of the neck). However, all of the patients showed some degree of this change.

Union at the fracture site occurred in twenty-four (75 per cent) of the thirty-two living patients. Contrary to what was expected, the average age of the patients with union (69.4 years) was approximately the same as that of the patients with non-union (68.9 years).

Functional End Results.—Functional end results were expressed by grading each patient as A (excellent), B (good), C (fair), and D (poor). As an example of the stringent requirements used in awarding these grades, grade A function means that the patient had no pain in the hip when lying on the affected side, when sitting, or when walking. Furthermore, this grade means that the patient could walk without support of any kind, had no more than a negligible limp, could sit or rise from a chair unassisted, could pick things off the floor, could kneel down and rise unaided, could tie either shoe lace, could cross either knee over the other, and could walk up and down stairs one foot after the other without even using the hand rail. The patient must have had 90 degrees or more of hip flexion (or at least 80 per cent of that present in the opposite hip), 180 degrees of hip extension, 25 degrees of abduction (or 80 per cent of that in the opposite hip), 15 degrees of hip adduction (or 80 per cent of that in the opposite hip), 35 degrees of external rotation, and the ability to rotate his extremity so that the toes pointed straight forward. Grade A means, of course, that the patient had a negative Trendelenburg sign. The requirements for Grades B, C and D were progressively less exacting. Patients with Grades A, B, or C were considered to have had satisfactory and those with Grade D unsatisfactory functional results.

Only twenty-four patients could be evaluated for function. Five of the eight remaining patients had spastic paralysis prior to their factures, two had had amputations as mentioned above, and one was bedridden with a recent fracture of the opposite hip. The patients with union (nineteen) and with non-union (five) were evaluated separately.

Of the nineteen patients who obtained union, four (21 per cent) had excellent, ten (53 per cent) had good, and three (16 per cent) had fair function. Therefore, 90 per cent of the nineteen patients with union had satisfactory function. The two patients in this group with unsatisfactory function were those mentioned above who developed painful osteoarthritis postoperatively. If the two patients who had had amputations are included as failures, then only 81 per cent of the patients with union had satisfactory functional results.

Of the five patients with non-union, three had fair and two had unsatisfactory functional results. In the combined group (unions and non-unions) there were twenty patients out of twenty-four (83.3 per cent) with satisfactory functional results. If the two patients with amputation are included, there were twenty patients out of twenty-six (78 per cent) with satisfactory functional results.

The study was not large enough to allow a statistically significant evaluation of the effect of early weight bearing on union, neck erosion, aseptic necrosis, and function. However the results *indicate* that weight bearing should not be allowed until there is x-ray evidence of bony union.

Summary

Operations used in the treatment of non-union of intracapsular fracture of the hip are briefly described under two headings, the reconstructive and plastic procedures and the osteotomies.

The treatment of fresh intracapsular femoral neck fractures by primary wedging osteotomy with internal fixation of both the fracture and the osteotomy is presented.

Forty-five cases of intracapsular fracture treated by primary osteotomy at Minneapolis General Hospital from October 1, 1946 to September, 1948, are analyzed.

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Discussion

Dr. A. Zierold.—Gentlemen, this is a rather formidable paper to discuss. It involves so many things that I can do no more than call attention to some points that seem deserving of further discussion.

I am familiar with the background of this paper inasmuch as it was developed on a fracture service with which I have been associated for several years. At the Minneapoils General Hospital during the past twenty years, we believe that we have followed a progressive course in the treatment of fractures of the hip. A few years ago, however, a careful analysis of the cases that were followed for two to three years showed our progress to be more apparent than real. It is in part in response to these findings that Dr. Nelson has interested himself in improving the methods and, consequently, the results. The method which he describes is by far the most successful and reasonable method that I have had the opportunity of examining.

The moving pictures were beautifully made, but I fear that they create something of an illusion. The operation is not as easy as the pictures would lead you to believe. While I am satisfied that this procedure is sound and effective, I am equally satisfied that it is not a procedure to be undertaken by the occasional operator. This is an operation for a surgeon.

I believe that Dr. Nelson has been too modest in analyzing his results. It should be remembered that the material with which this paper deals is of the poorest quality. The age level is high and for the most part, these patients are poor surgical risks. Furthermore, you will note from Dr. Nelson's classifications that he has taken the most difficult angle of fracture to treat. I believe that this procedure could be presented in a much better light with patients that more nearly represent the average than those which make up his series.

The mortality figures are arranged in a somewhat unfavorable light and I do not believe that they truly represent the situation. The mortality figures of a procedure should be restricted to hospital deaths only. Dr. Nelson has made no effort to compare this method with others, either favorably or unfavorably, and I do not believe that it is the function of the discussion to do so. In considering all of the data presented here in this short time, I would be prepared to accept Dr. Nelson's ideas without reservation. I believe that he is to be congratulated in not only the manner in which he has presented the case, but most of all for its development.

Dr. John H. Moe.—I enjoyed Dr. Nelson's paper. It is hard to know what to say about the treatment of intracapsular hip fracture. I find from experience that no matter how you do it, it is tough going. My personal experience with the primary osteotomy for intracapsular hip fractures is as follows, and you can gather from this that I am not doing the procedure any more: I used the wedge osteotomy with internal fixation twice in 1944. I did two in 1946 and six in 1947. I chose to stop doing primary osteotomies as I felt that advancements in the treatment of hip fractures were becoming prevalent throughout the country and that the results of internal fixation were getting better than in former years.

I have analyzed 100 intracapsular fractures done between 1940 and 1945. Of these, nine were impacted fractures. Excluding these, there were sixty-four that could be analyzed at the end of five years. There were 62.5 per cent of excellent results, and I used essentially the same criteria that Dr. Nelson has outlined in rating the cases. There was aseptic necrosis in 28 per cent and nonunion without aseptic necrosis in 18 per cent. I felt at that time that this was an unsatisfactory result and that is why I suggested the primary osteotomy in an attempt to obtain a better result. Since 1945, there have been some very definite opinions brought forth as to what constitutes a satisfactory reduction, and it has been my experience that when these principles are strictly adhered to that the results are definitely better, so that at the present time I feel that the percentage of non-unions that can be expected in ordinary internal fixation of a fracture of the neck is less than the per centage that Dr. Nelson has shown occurs following a primary osteotomy. Very few, if any, of the primary osteotomies have normal hip function, so I feel that the osteotomy should be reserved for those cases which are showing delayed union. The insertion of a bone graft will also lessen the need of the osteotomy in the treatment of delayed or nonunion of the fracture.

I wish to make mention of a recent article by Dr. John Spikoff of Denmark. In a large series of intracapsular hip fractures there were 86 per cent healed and 33 per cent of aseptic necrosis. The percentage of aseptic necrosis seemed to be in direct proportion to the displacement of the fracture, and he found that with marked displacement of the fracture, aspetic necrosis occurred in 69 per cent. In impacted fractures, there was an extremely small percentage of aseptic necrosis. Furthermore, he found no difference in healing between the so-called vertical fractures and the transverse neck fracture. In other words, Pauwels classification did not apparently have any prognostic value as to the healing in this series. Furthermore, he treated 50 patients personally between 1941 and 1943, and 94 per cent of these healed and 6 per cent had a pseudoarthrosis and 16 per cent an aseptic necrosis. I personally feel that our efforts should be directed toward getting a better anatomical reduction and an overcorrection into an abducted position rather than to do the primary osteotomy. In my experience, Pauwels group 3 and 4—that is, the so-called vertical fracture—heal just as well when properly reduced as any other kind of fracture. Therefore, this in my opinion is not a criterion for doing a primary osteotomy.

Question: What method do you use to get good results?

Answer: Based on my observation, I'm getting better results since 1945, and I think it is because I am reducing fractures anatomically and impacting them into an abducted position and internally fixing with wires which go as vertically as possible, starting low and going up into the head, particularly following the inferior and posterior portion of the neck and head. I do not feel that wires offer any better solution to the problem of internal fixation than a Smith-Peterson nail, but in my experience the use of the Moore pins or wires is easier. It should also be mentioned that the heavier Moore pins are used now rather than the old thin ones.

Dr. Raleh T. Knight.—The most important thing about the anesthesia for these old patients with fracture of the hip is to give as little anesthetic as possible. No anesthetic should be given while the patient is in shock. Unless and until the shock is successfully treated, no anesthetic should be administered and no operation should be performed.

Low spinal anesthesia with a small dose is good if the patient can be turned for the puncture without too much pain and injury. If he is too restless and uncomfortable under the spinal a very little sodium pentothal should be given.

A well-done local anesthesia, especially if the capsule is intact enough to hold 25 c.c. or more of solution, works very well.

Probably the best anesthetic is sodium pentothal with d tubocurarine, 3 mgms. of the latter with each 100 mgms. of the former, the very smallest possible dose being given to keep the patient fairly quiet. In a recent case only 175 mgm. of sodium pentothal and 5.25 mgm. of curare were used. A tracheal tube had to be inserted to aspirate a large quantity of bronchiectatic secretion. The patient was talking as we lifted her from the table.

The most important consideration is to give the smallest possible dose of anesthetic.

Dr. Earl C. Henrikson.—I have enjoyed this paper very much.

About ten years ago, as my inaugural thesis before this Society, I presented a study of 100 patients with intracapsular fractures of the hip, treated between 1930 and 1936 when internal fixation was first used at General Hospital in place of the Whitman cast method of treatment, showing a drop in mortality each year from 50 per cent previously to 0 per cent in about 1936. Since then the mortality has varied from year to year between 5 and 10 per cent. The improvement in the mortality rate in these cases was attributed in part to the use of internal fixation and in part to the fact that these fractures were treated as emergencies and operated upon immediately rather than after a waiting period during which complications might develop. In that series and in other series published around 1940 the percentage of unions ran quite uniformly around 85 per cent. Dr. Zierold has brought out the fact that in spite of the many different methods of treating intracapsular fractures the percentage of those uniting has not been improved much if at all. The type not uniting, in spite of what has been done to internally fix them, are the subcapitate type and those with the fracture line vertical or close to vertical. Emphasis should be placed on the fact that in Dr. Nelson's series of patients only those whom we would ordinarily expect might go on to non-union were selected for their primary osteotomy with plate fixation, yet the results show unions in just as high a percentage as in the average run of cases. In other words, Dr. Nelson et al have obtained essentially the same percentage of unions in patients in whom we would ordinarily see no union.

Dr. R. E. Hultkrans.—How long do you wait after the fracture before doing an open reduction or primary osteotomy? I do not believe that this time factor was mentioned in the essay.

Dr. Edwin G. Benjamin.—Could you give something on the comparative results between this treatment and some of the other newer methods?

Can any other method of fixation be used or is the Moe plate the most satisfactory?

Dr. M. C. Nelson (in conclusion).—In answer to the question about the effect of delay before operating on the mortality rate, no statistics are available. At one time we delayed a long time and the results were not good. Then we went to the other extreme and operated as an emergency procedure and had disconcerting results. Now we have taken more the middle road. Each patient is carefully evaluated as to cardiac status, kidney function, etc., before operation. It is my impression that our mortality rate decreased after adoption of this policy.

Dr. Moe brings out a point which is being stressed more and more in the literature. This is that more attention is being given to the high incidence of aseptic necrosis of the femoral head rather than to non-union of the fracture. The reason for the generally lower incidence of non-union I believe is that men are realizing that anatomical reduction or reduction in abduction —with the head fragment more or less on top of the neck—is a necessary prerequisite to stable internal fixation.

I am glad to say Dr. Knight, that we have no argument about anesthesia in these elderly patients. We put the patient to sleep with pentothal but depend on local infiltration novocaine for our anesthesia. Curare is not used at all and usually only about a half gram of pentothal. We do not mind a little movement on the part of the patient.

In answer to Dr. Benjamin, Dr. John Moore of Philadelphia, in 1948, described a procedure similar to the Brackett operation. The head of the femur is removed and drilled out until nothing is left but cartilage and a thin shell of bone. The stump of the neck is then rounded off and the cartilage cap fitted to it. It is essentially a cartilage cup rather than a vitallium cup arthroplasty.

For the average fracture—ones with a fracture angle of less than fifty degrees—we use a Smith-Peterson nail but first we must have an absolutely satisfactory reduction; by this I mean anatomical reposition of the fragments or with the head fragment in abduction. If we are unable to obtain perfect reduction, I favor an immediate or primary McMurray or Leadbetter type of osteotomy rather than an open joint operation.

Albert T. Hays, M.D.
Recorder

The discovery of unsuspected tuberculosis among the patient population of the general hospital represents case finding under particularly favorable conditions. All such persons have already elected to become patients. It is far easier under such circumstances to obtain the co-operation of the individual and of his family. The door is open for extension of the survey to relatives, friends and known prior contracts. Isolation and treatment can be started without delay.

All of the facilities for collateral diagnosis are readily at hand. The all-important step of substantiating miniature chest findings with those obtained on the basis of more extensive x-ray examinations can be carried out with dispatch and without the danger of losing contact with the individual, which often presents a serious problem in surveys conducted among large groups of supposedly normal individuals.—Fred J. Hodges, M.D., *Journal, Michigan State Medical Society,* November 1949.

Minnesota Academy of Medicine

MEETING OF FEBRUARY 14, 1951

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town and Country Club on Wednesday evening, February 14, 1951. Dinner was served at 7 o'clock and the meeting was called to order at 8:25 p.m. by the President, Dr. W. H. Hengstler.

There were thirty-seven members and four guests present.

Minutes of the January meeting were read and approved.

Following a short business session, the scientific program was presented.

HEARING LOSS

LAWRENCE R. BOIES, M.D.

Minneapolis, Minnesota

You are aware of the fact that the character of otologic practice has changed in recent years. Beginning in about 1937, the use of the sulfonamides brought a decrease in the incidence of acute suppurations of the middle ear and of the complications of these infections. Today, we rarely do a myringotomy and more rarely an operation for acute mastoiditis. Because of this, it might seem that the practice of otology has become a specialty of more limited activity. However, the opposite is true. Probably the change in the character of the otologist's practice has focused his energies on hitherto neglected aspects of otology. In addition, advances in the means of assessing otologic function have made changes in the therapy and rehabilitation of disorders of hearing.

Today, in spite of a marked reduction in the incidence of acute suppurations and the complications of this disorder, we are seeing numerous cases of a hearing loss of the conduction type due to disorders involving the middle ear.

Chronic secretory otitis media, in which an exudate or transudate occurs in the middle ear, is common, particularly in children. The basic mechanism in the production of this is apparently a closure of the eustachian tube. Lymphoid tissue in the form of adenoid structures is often the site of infection which involves this tube. Congestion in the tube due to allergic reaction is another factor. Faulty pneumatization of the mastoid because of certain middle ear conditions developing at birth or infections or irritations in the tube in early infancy may be another important factor.

Irradiation of the nasopharynx with radium or x-ray has been widely heralded. It is my opinion that irradiation is not the panacea that the enthusiasts for it would lead us to believe. Many of the reports indicating good results from its use are not convincing because they lack adequate controls or the condition being treated is not clearly defined. There is a limited use for this treatment.

Otosclerosis is a common cause of hearing loss. Routine studies of temporal bones in cases in which hearing loss is not a problem would indicate that the existence of otosclerotic foci is common in the white rat and more common in the female sex. We use the term "clinical otosclerosis" for those cases in which an otosclerotic focus causes hearing loss. In the event that the hearing loss from clinical otosclerosis remains conductive there is a chance that the hearing can be restored to a serviceable level by the fenestration operation. This involves by-passing the stapes fixed in the oval window by creating a window in the ampulated end of the horizontal semicircular canal. To date, the biggest obstacle to a permanent result from the creation of this window is the tendency for this opening to close. However, improvements in technique have raised the percentage of success. Today, I would estimate that in the ideal case in which the operation is skillfully performed there is about a 60 per cent chance of a permanent result.

In spite of the fact that there is little work in the matter of acute suppurations of the middle ear and its complications, the otologist is still seeing considerable chronic suppurative otitis media. Some of these cases are hangovers from severe middle ear infections complicating scarlet fever or measles in childhood. In time, we will run out of these because the dwindling cases of these disorders have their complications controlled. However, there are the cases of chronic middle ear suppurations resulting from an infection occurring in the middle ear in which mastoid pneumatization has been disturbed in early infancy. Once infection has gained a start in these cases, these seem to be destined to more or less chronicity and are not affected permanently by the sulfonamides or antibiotics, probably because of the relatively poor blood supply of the middle ear mucosa in these cases. Also, there are the cases of limited chronic suppuration in the attic of the middle ear which are apparently due to invagination of Shrapnell's membrane from prolonged negative pressure in the middle ear from eustachian tube occlusion. These are apparently unaffected by the sulfonamides or antibiotics.

Perceptive hearing loss is not amenable to treatment.

The presentation of this paper was accompanied by lantern slides.

Our hope for this type lies in prevention. Damage of the nerve of hearing or the neural mechanism in the organ of Corti occurs from infections, drugs, trauma, et cetera. The first is being controlled. The second when recognized should be controlled. Acoustic trauma from noise is everywhere a possibility. This fact is becoming recognized. Prevention lies in protecting human ears from exposure to loud sounds or concussion by the avoidance of this exposure or protection by the use of defenders placed in the external ear.

Discussion

Dr. Kenneth A. Phelps, Minneapolis: Dr. Boies' excellent talk brings out many of the changes that have occurred in otology during the past twenty years. His chart showing the control of acute otitis media and the elimination of acute surgical mastoiditis is very interesting. That may be one reason why the ear surgeon is now developing operations for deafness rather than for infection. Dr. Boies explained the fenestration operation which is done for otosclerosis, and he is to be complimented on his work in this field. We all hope that some successful treatment will be developed for other types of deafness as well.

Dr. Carl B. Drake, Saint Paul: Recently I saw some statistics to the effect that twenty years ago mastoidectomy was the third in the list of operations in frequency. Tonsillectomy came first and appendectomy second. With the advent of sulfa drugs, ear infections have been so well controlled that mastoidectomy is seldom required.

Dr. Robert Priest, Minneapolis: I enjoyed the presentation and certainly Dr. Boies has given us a very good summary in this field. I have admired his attack on the problem of fenestration over a number of years. Quite a while ago I saw a mimeographed form which Dr. Boies gives to his prospective operative patients. This presents the pros and cons of the procedure, and there were more cons on the page than pros; and still the patients come back for operation. This is indeed a forthright and honest manner of handling the problem, which of course is no surprise to those of us who know him well and have studied under him.

SLOW RESPONSE TO PREOPERATIVE ANTITHYROID THERAPY IN SEVERE HYPERTHYROIDISM

Report of Two Cases

DONALD C. MACKINNON, M.D.
Minneapolis, Minnesota

The purpose of this thesis is to report and discuss two cases of hyperthyroidism showing a delayed response to the present methods of preoperative preparation. In each of these cases the principal antithyroid drug administered was propylthiouracil. A detailed account of the pharmacology and toxicity of propylthiouracil is not a part of this report. However, the application of the drug and the expected clinical response of the patient to propylthiouracil, when used in cases of hyperthyroidism, are worthy of comment.

By blocking the production of thyroxin, propylthiouracil is capable of reducing to normal the elevated basal metabolic rate of hyperthyroidism resulting from either primary hyperthyroidism or adenomatous goiter. With the fall in the basal metabolic rate there is a gradual amelioration of all signs and symptoms of hyperthyroidism except those of the eye.

Lahey and Bartels[5] state that in their experience there has been no patient in whom they have failed to bring the metabolic rate to normal if one of the drugs in the thiourea group is administered in a large enough dose over a long enough period of time, and provided they were not compelled to discontinue it because of a complication.

According to Bartels,[1] it was not until the daily dose had been increased to 200 mg. that uniformly satisfactory improvement was accomplished in all cases. Larger doses, up to 600 mg. a day, have been used in a few cases without a significant difference in the clinical response to that obtained with 200 mg. For patients with large adenomatous goiters, whose response to therapy is always slow, a daily dose of 300 mg. is given.

It is important to be able to estimate with reasonable accuracy when the patient being treated with propylthiouracil will reach a euthyroid state and be ready for thyroidectomy. Lahey and Bartels[5] find that the time required to bring the elevated basal metabolic rate to normal is determined from the following factors: the type of thyroid disease, primary hyperthyroidism or adenomatous goiter, the duration of the disease, and whether or not iodine had been taken previously. Patients with primary hyperthyroidism who have had the disease nine months or less and have not taken iodine have an estimated daily drop of 1.3 per cent in the basal metabolic rate. If iodine had previously been taken, the drop is 1 per cent each day. If the hyperthyroidism is over one year in duration, irrespective of iodine administration, the drop is 1 per cent each day. Patients having adenomatous goiter with hyperthyroidism, particularly those who have been treated with iodine before preoperative preparation, require a much longer period of time to restore the basal metabolic rate to normal because these glands, with their large storage of thyroxin-laden colloid, have greater reserves of thyroxin. In this type there will be a drop in the basal metabolic rate of approximately .5 per cent each day. In 660 cases the longest time Lahey and Bartels[5] have given the thiourea agents to bring the metabolism to normal was 180 days in a patient with a large, toxic adenomatous goiter who had been receiving iodine for a long period of time before preparation for thyroidectomy.

Inaugural thesis.

Bartels[2] found that the combined use of Lugol's solution with propylthiouracil from the onset of therapy in patients with primary hyperthyroidism has delayed the ultimate reduction of the basal metabolic rate. The average drop in the basal metabolic rate with combined therapy is established as 1 per cent and .8 per cent as compared with 1.3 per cent and 1 per cent, respectively, in patients with hyperthyroidism of short duration and those with longstanding hyperthyroidism.

With these facts in mind, the following case reports are of interest because there is a delayed response to propylthiouracil in one and a stubborn resistance to the drug in the other case. The first patient reached what was considered to be maximum improvement after fifteen months of preoperative preparation. She died postoperatively in what was thought to be a thyroid crisis. The second patient resisted propylthiouracil therapy for six months and at the end of one year was finally brought to a satisfactory preoperative condition by the additional administration of radioactive I^{131}. This patient made an uneventful recovery after thyroidectomy.

Since radioactive iodine was used in the second case, a brief summary of the action of this isotope is indicated. Means[6] and others working in the field of radioactive therapy believe the therapeutic effect of I^{131}, which has a half-life of eight days, is due to a destructive action on the parenchymal cells of thyroid tissue. Radioactive iodine emits beta and gamma rays. The therapeutic effect is due chiefly to the beta rays which have a penetrating power of only a few millimeters. I^{131} gives off its total radiation in forty-eight to fifty-six days. Three to four months are allowed for the maximum clinical effect. Chapman, Skanse, and Evans[3] have shown that the average retained dose in patients with hyperthyroidism is .142 millicurie per estimated gram of thyroid tissue; 97 per cent of this dose is delivered in thirty days. The dosage of this isotope has been slowly increased from 4 to between 8 to 14 millicuries. According to Werner, Quimby, and Schmidt,[7] the sum of the thyroid uptake, as measured by means of the Geiger counter, and urinary excretion of I^{131} in twenty-four hours never represents 100 per cent of the administered material, but varies from 70 to 85 per cent of this, the remainder being distributed in smaller concentration in the blood and certain other organs. Thus, when the urinary output is low, the thyroid uptake is high, but the quantitative inverse ratio is not exactly proportional. These authors found that in normal persons the gland uptake in twenty-four hours was between 15 and 30 per cent of an administered tracer dose. In patients with toxic diffuse goiter the uptake was from 44 to 76 per cent. Radioactive iodine is successful in controlling symptoms of hyperthyroidism in 90 per cent of the cases. The problem in this type of therapy is to select a dosage that will not induce permanent hypothyroidism.

Case 1.—A white woman, sixty-four years of age, was first admitted to the Minneapolis General Hospital on January 27, 1947. The present illness began twenty years ago when a physician discovered an enlargement of the thyroid gland and advised thyroidectomy. The patient refused operation at that time because her symptoms were minimal. About six years ago the goiter began to grow and she complained of nervousness. From that date to the present she noted the gradual development of the following symptoms: enlargement of her neck, nervousness, tremor of the hands, excessive appetite, sweating, palpitation, shortness of breath, choking spells, and a weight loss of 30 pounds. For the past two years the symptoms progressed, becoming much worse during the past three months. In all other respects her past health has been good. The patient had taken Lugol's solution for a short period of time three years ago.

Physical examination revealed a nervous, agitated, apprehensive, and emotional individual. She had a visible tremor of the hands and fingers. She picked at the bed clothes. There was a diffuse nodular enlargement of the thyroid gland with a greater enlargement of the left lobe, suggesting an intrathoracic extension with displacement of the trachea to the right. A soft systolic bruit was heard over the right lobe. The eyes did not protrude but there was a staring expression present. The pulse rate ranged between 110 and 120. The blood pressure was 156/60. She weighed 95 pounds. Other physical findings were normal.

The initial basal metabolic rates ranged between +32 and +41 per cent. The urinalysis, routine blood, and serological studies were negative. The blood cholesterol was 107 mg. per cent. Roentgenograms of the neck and chest revealed a displacement of the trachea to the right and normal lung fields. The electrocardiogram revealed a left axis deviation and myocardial damage. The diagnosis was toxic nodular goiter.

On February 4, 1947, the patient was given thiouracil, .6 gm. daily. At the end of a week the drug was discontinued because a skin rash appeared. She was then given Lugol's solution, 30 drops daily. After a month of rest in the hospital there was only slight improvement in her condition. She was discharged from the hospital on February 24, 1947. The patient was advised to take 30 drops of Lugol's solution daily and report to the out-patient clinic each week.

On April 3, 1947, the patient was readmitted to the hospital with persistent symptoms of hyperthyroidism after taking Lugol's solution for a period of six weeks. She was still very nervous and agitated. Several basal metabolic rates ranged from +31 to +46 per cent. The pulse ranged between 95 and 100. Her weight was 96 pounds, revealing essentially no gain in weight. On April 24, 1947, she was given propylthiouracil, 150 mg. daily in addition to the 30 drops of Lugol's solution daily. On June 9, 1947, the propylthiouracil was increased to 200 mg. daily. Lugol's solution was discontinued on July 22, 1947. In August, 1947, several basal metabolic rates were obtained ranging from +10 to +15 per cent. The pulse ranged between 85 to 90. The patient's maximum weight at this time was 104 pounds, a gain of approximately 10 pounds. Although the patient had greatly improved, it was the opinion of the medical and surgical staffs that she had not reached a normal state. She was discharged from the hospital August 27, 1947, taking 200 mg. of propylthiouracil daily.

In the out-patient clinic during the next three months several basal metabolic rates ranged from +10 to +24 per cent. The last of November, 1947, the metabolism was +14 per cent. On February 16, 1948, the reading was +10 and +3 per cent, and the weight was 114 pounds, a total gain of approximately 20 pounds. The pulse ranged between 70 and 85. On February 24, 1948, the patient was readmitted to the hospital for thyroidectomy. Her only complaints were fatigue, shortness of breath, and palpitation on exertion. Electrocardiogram revealed an occasional auricular extrasystole, left axis deviation, although the tracing was considered to be within normal limits. Roentgenograms of the heart revealed no enlargement and no evidence of pulmonary pathology. The displacement of the trachea to the right was again noted. In addition to the propylthiouracil, 15 drops of Lugol's solution daily was administered for three weeks prior to operation. Figure 1 shows the course of the basal metabolic rate, pulse, and weight during the fifteen months of preoperative preparation. Figure 2 shows a photograph and the facial expression of the patient taken in March, 1948, a few days before operation.

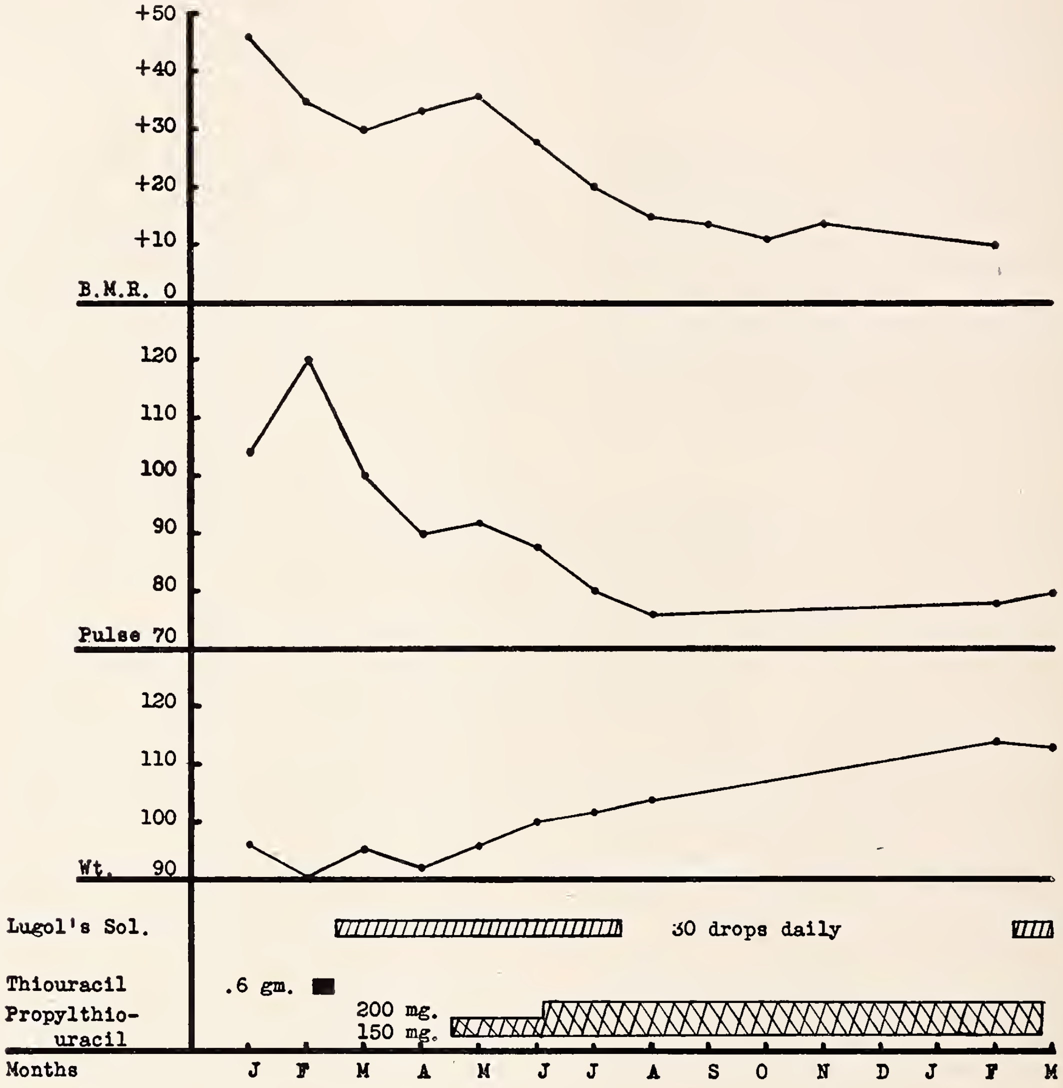

Fig. 1. Preoperative course of the first patient.

On March 9, 1948, subtotal thyroidectomy was performed by the attending and resident staff of the Minneapolis General Hospital. The anesthetic was pentothal, curare, and endotracheal nitrous oxide and oxygen. The procedure was long and difficult due to troublesome bleeding encountered in removing the large substernal portion of the left lobe. The pulse rose from 112 to about 200 and then dropped to between 140 and 160, where it remained throughout most of the procedure. There was a fall in blood pressure due to excessive blood loss. A transfusion of 1,500 c.c. of blood was administered during and after the surgical procedure. Postoperatively the patient was given oxygen continuously, morphine for restlessness, and intravenous sodium iodide. The patient failed to regain consciousness. The skin was hot, the temperature rose to 104.3°, the pulse continued to range between 140 to 152, and the respirations were 28. An emergency electrocardiogram revealed a sinus tachycardia. Suddenly, eight hours after operation, the pulse became weak and irregular, the blood pressure dropped, and the patient expired in what appeared to be a thyroid crisis initiated during surgery. Since an autopsy was not obtained, the cause of death was not absolutely accurate.

The surgical specimen consisted of two pieces of thyroid tissue weighing 155 gm. The gross appearance was that of multiple, large and small adenomas. Microscopically there were large cystic glands filled with colloid. Occasionally there were papillary enfoldings into the cystic glands. The diagnosis was thyroid adenomas of the cystic colloid type.

Discussion.—In this case approximately ten months were required for propylthiouracil to lower the basal metabolic rate to normal and make the patient a satisfactory risk for thyroidectomy. The average estimated time necessary to lower the basal metabolic rate in adenomatous goiter with an initial rate of +40 per cent should have been about three months. It is entirely probable that the long-standing effect of hyperthyroidism delayed the therapeutic action of propylthiouracil. The drug will abolish the synthesis of thyroxin but will have no effect whatever on the thyroxin which is synthesized and stored.

The sudden postoperative death in a patient that seemed adequately prepared was somewhat startling. Without an autopsy one cannot be certain that the patient died in a thyroid crisis. However, to the clinicians in charge of the case, it appeared to be the probable cause of death, and it was listed as such on the record. The length of the operation, the trauma necessary to control the troublesome hemorrhage, and the difficulty encountered in delivering the large substernal left lobe might have liberated sufficient thyroxin to produce such a reaction. Before the days of adequate antithyroid preparation, Lahey[4] believed that severe postoperative reactions were a result of too much surgery. He advocated stage operations in the poor-risk patient. In this patient the surgeons were warned of trouble ahead when the pulse rose to 200 and then fell to remain between 140 and 160 throughout the procedure. A death might have been avoided if the operation could have been stopped. However, with the present methods of preoperative preparation one never anticipates a postoperative thyroid crisis.

*Case 2.**—A thirty-eight-year-old male truck driver was first admitted to the Minneapolis Veterans Hospital on July 16, 1947. The present illness began in 1945 while in the service, when he noticed a shakiness of his hands. Since November, 1946, the patient had been in poor health. During the past eight months he noticed nervousness, restlessness at night, increased tremor of his hands, sweating, weakness, increased appetite, loss of weight, and diarrhea. He ate six meals a day but lost 35 pounds during the last seven months. The patient noticed that he had lost strength and could not lift the heavier boxes at work. He had diarrhea for four months, having four to eight loose stools each day. The patient thought his eyes were more prominent during the past month. His mother thought he had had a visible goiter for several months. He stopped work on July 14, 1947, and consulted his local physician, who told him he had a toxic goiter. His doctor referred him to the Veterans Hospital for treatment. He had never taken iodine in any form.

Physical examination on admission revealed a well-developed, but thin, chronically ill, activated, white male. His movements were quick. There was a fine tremor of the hands and quivering of the body. The skin was warm and moist. A staring expression of the eyes was present, but he had no apparent exophthalmos. There was visible enlargement of the neck which by palpation revealed a moderate bilateral enlargement of the thyroid gland. There was a systolic bruit and a thrill over the left superior pole. The blood pressure was 154/78, the pulse 142, and the weight 113 pounds. General muscle weakness was present. No other abnormal physical findings were noted.

Laboratory findings revealed an initial basal metabolic rate of +67 per cent. The blood cholesterol was 135 mg. per cent. The hemoglobin was 91 per cent, the white blood count was normal except for a relative lymphocytosis of 35 per cent. The urinalysis showed a trace of albumin with occasional white blood cells and granular and hyaline casts. At a later date these urinary findings disappeared, and the phenolsulfonphthalein test was normal. The electrocardiogram showed a sinus tachycardia. The roentgenogram of the chest was normal. There was no evidence of cardiac enlargement or tracheal displacement. Lateral roentgenograms of the neck revealed a minimal depression of the anterior surface of the trachea probably by an enlarged thyroid gland. The diagnosis was diffuse hyperplastic goiter (Grave's disease) with thyroid toxicosis.

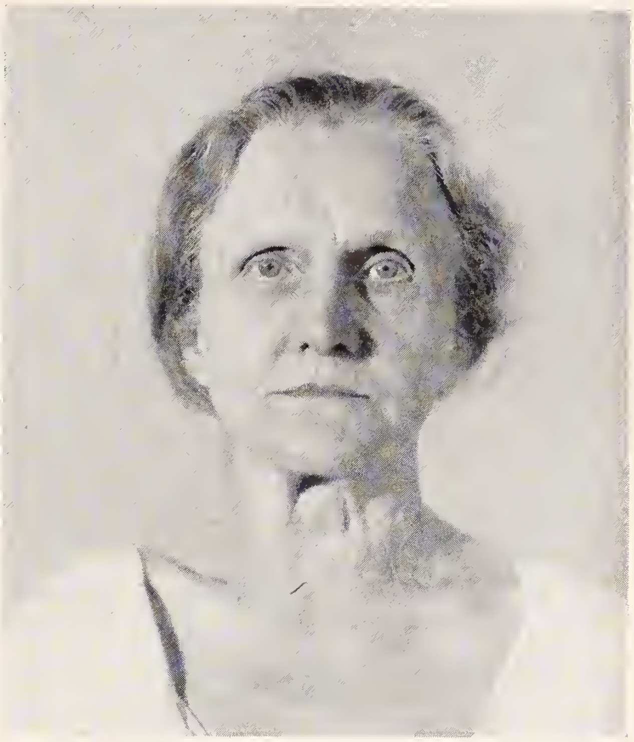

Fig. 2. Preoperative photograph of the first patient.

On July 22, 1947, the following therapy was administered: propylthiouracil, 200 mg. daily, Lugol's solution, 30 drops daily, phenobarbital sedation, and a diet with a caloric intake of approximately 5,000 calories a day, supplemented with a high vitamin intake.

On August 21, 1947, the patient had shown slight improvement as compared to his severely toxic condition on admission. The blood pressure was 135/64. The pulse ranged between 100 and 120. The basal metabolic rates ranged between +40 and +50 per cent. The weight was 134 pounds. The thyroid gland seemed considerably larger than it was on admission and the neck had increased in size from 15 to 17 inches. On August 23, 1947, the propylthiouracil was increased to 400 mg. daily and the same dosage of Lugol's solution was continued.

On October 10, 1947, Lugol's solution was discontinued because, except for a gain in weight, there was very little objective evidence of improvement from the combined antithyroid therapy. On November 25, 1947, the patient weighed 126 pounds. The basal metabolic rate ranged between +50 and +60 per cent. The pulse ranged between 90 and 120. The gland was smaller and more firm and the neck size was 15½ inches. It appeared that the patient had not improved and might even have slipped slightly.

Due to the unsatisfactory response to propylthiouracil over a period of six months, the medical staff concluded that this patient would be a satisfactory candidate for radioactive iodine as soon as it could be obtained from the Oak Ridge, Tennessee, plant. On January 29, 1948, propylthiouracil was discontinued. The estimated weight of the thyroid gland was 50 gm. The following day the patient received 7 millicuries of I^{131} at the University

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*Case 2 is published with permission of the Chief Medical Director, Department of Medicine and Surgery, Veterans Administration, who assumes no responsibility for the opinions expressed or conclusions drawn by the author.

Hospital under the supervision of Dr. Howard Horns. A check of the amount of radioactivity over the gland revealed the patient had taken up approximately 4.5 millicuries of radioactive iodine. Dr. Horns thought this amount would produce a satisfactory response. On February 3, 1948, propylthiouracil was again administered in a dose of 400 mg. daily. On February 29, 1948, the patient was given a furlough at home with weekly hospital interviews. Prior to the furlough his pulse ranged between 90 and 110. His weight was 130 pounds. The basal metabolic rate ranged between +30 and +35 per cent. The size of the gland continued to decrease and the patient showed a definite improvement.

During the next four months the patient continued to improve. By June, 1948, the basal metabolic rate ranged between zero and +15 per cent. The pulse ranged between 70 and 90. The weight was 130 pounds. It was the opinion of the medical staff that a few clinical signs of hyperthyroidism remained. The patient was nervous, underweight, and weak. There was a tremor of the hands and a moist skin. Although the gland had diminished in size, there was still a loud bruit over the left upper pole. Thyroidectomy was advised at this time, and it was believed that the preoperative preparation was adequate. Propylthiouracil was discontinued on June 20, 1948, and Lugol's solution administered for ten days prior to operation. Figure 3 shows the course of the basal metabolic rate, pulse, and weight during the period of preoperative preparation.

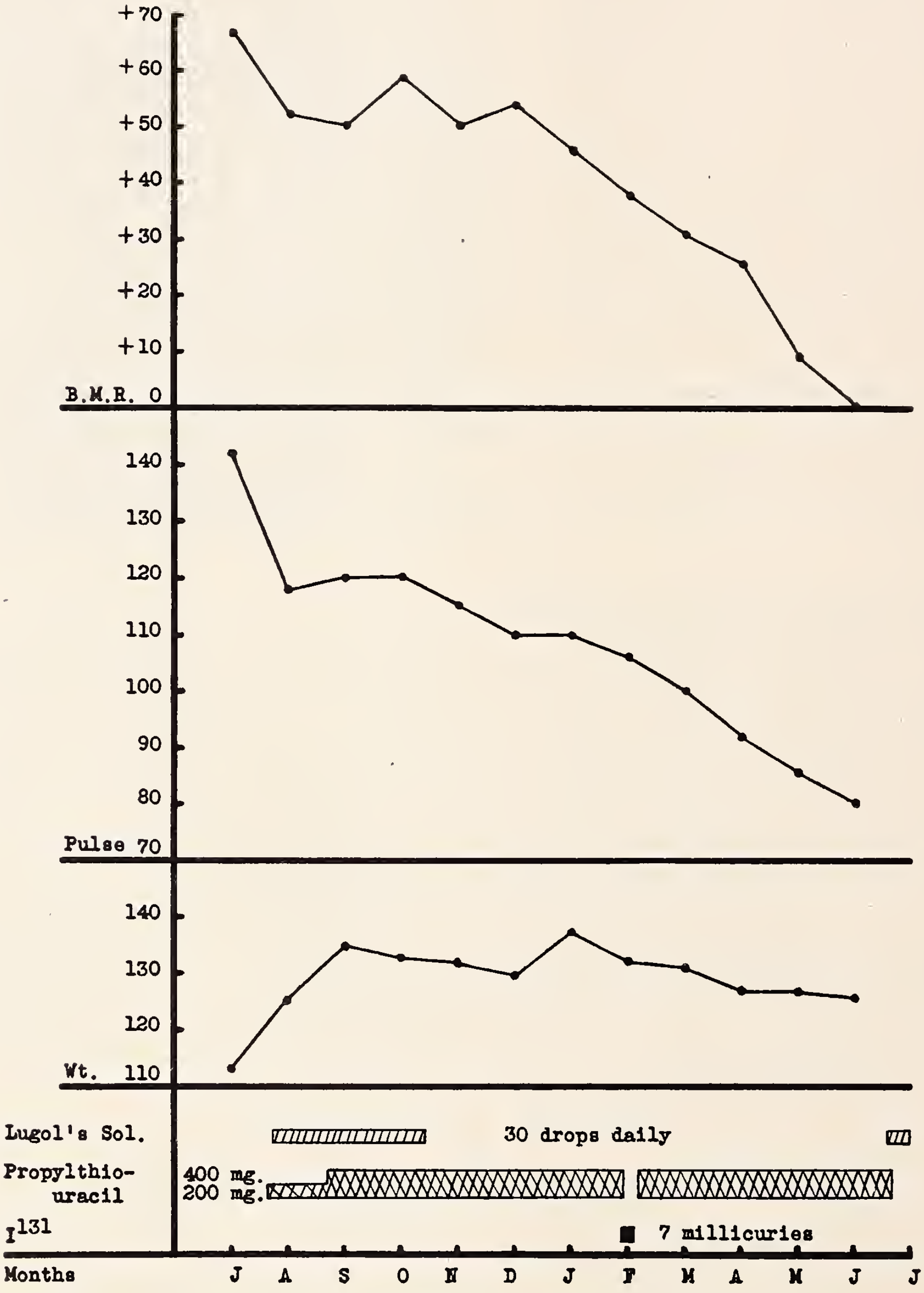

Fig. 3. Preoperative course of the second patient.

On June 30, 1948, subtotal thyroidectomy was performed by the author, without incident in a comparatively dry field. Grossly the gland appeared to be partially involuted. One hundred and forty grams of tissue were removed. The pathologist's report was diffuse hyperplastic goiter with evidence of iodine involution. One small portion of the gland revealed evidence of a colloid adenoma of the thyroid. Very small thyroid remnants were left on each side. Postoperatively the patient's convalescence was uneventful. On July 12, 1948, the basal metabolic rate was 0 per cent prior to his discharge from the hospital.

The patient was recalled on September 21, 1948, for examination. He felt well, noticing only slight sweating of the palms of his hands on occasions. The basal metabolic rate was + 7 per cent. He was recalled again on December 23, 1948. He had been entirely asymptomatic; however, he seemed to fatigue a little more easily than prior to his illness. The basal metabolic rate was — 9 per cent. The blood pressure and pulse were normal. His weight was 136 pounds, approximately 10 pounds under his normal weight.

Discussion.—In a patient with primary hyperthyroidism the estimated time for a basal metabolic rate of + 67 per cent to return to normal is approximately two and one-half to three months. It is difficult to explain why this patient showed so little clinical improvement during the first six months of propylthiouracil therapy. Just how long resistance to therapy would have continued is not known. Even though the administration of propylthiouracil was resumed after the radioactive iodine was taken, it was probably the radioactive iodine, rather than the propylthiouracil, that produced the satisfactory preoperative clinical response. Noticeable improvement began soon after radioactive iodine was given. When propylthiouracil fails to improve the patient with severe hyperthyroidism, within a reasonable length of time, one has an additional effective agent in I^{131} that can be used preoperatively. No undesirable late effects or fibrosis of the gland occurred as a result of radioactive iodine therapy.

Conclusions

When propylthiouracil is used preoperatively in severe hyperthyroidism, a resistance to the drug or a delayed response may occur occasionally. Radioactive iodine is a valuable adjunct when used in the preoperative preparation of the patient resisting propylthiouracil therapy.

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Discussion

Dr. S. R. Maxeiner, Minneapolis: I think this is a very timely and instructive presentation that Dr. MacKinnon has given us. His work at the Lahey Clinic has given him an excellent foundation.

There is still a great difference of opinion regarding the use of radioactive iodine. Some writers seem to feel that there will be no need for surgery and that the entire pathology can be controlled by radioactive substance. Other references in the literature, however, are not so positive and suggest that it might be necessary to follow radioactive iodine with surgery. Thirty or more years ago when I was with Dr. Farr, we operated on the mother of a Saint Paul doctor for a violent exopthalmic goiter. Those were the days before the use of iodine in any form, and this patient had the most violent reaction I have ever witnessed. Many of these extremely toxic thyroids were treated by the use of a metal syringe through which boiling water was injected into the substance of the thyroid gland. This seems a bit heroic but it was moderately effective.

When propylthiouracil was first put on the market, we used it on one case with inadequate dosage and over an inadequate length of time. The patient was operated upon in two stages and, after the first stage, was the most wildly delirious patient I have ever seen. Recently we operated upon a young man rejected by the army because of an exophthalmic goiter. He was treated with adequate doses of propylthiouracil and iodine, and subsequently his operation was performed with a minimal reaction. I still lean toward the use of propylthiouracil and iodine in appropriate doses over an adequate length of time as a preparatory treatment for surgery.

Radioactive iodine has been used in cases of malignancy of the thyroid to determine the presence of metastasis. After its injection the Geiger counter will frequently determine the presence and location, or absence of metastasis.

We have made one other observation which I think is worthy of mention, which is that patients who have been operated upon for exophthalmic goiter, and are apparently well, may have a violent thyroid reaction even years later after another operation. One patient whom I have in mind was operated upon by us several years previously and apparently cured of his exopthalmic goiter. Later I did a gastric resection for a peptic ulcer which was followed by a fatal thyroid crisis.

Dr. Charles E. Rea, Saint Paul: I enjoyed Dr. MacKinnon's paper very much. As with many other drugs, the more we know about propylthiouracil, the more we know about its limitations. With most patients it takes days to bring the metabolic rate to normal under propylthiouracil therapy, but with some patients, as Dr. MacKinnon's cases show, it takes a much longer time.

Regarding the treatment of hyperthyroidism, there are some questions I should like to ask. It is common practice to give a patient who has been treated by propylthiouracil a course of Lugol's therapy about ten days before operation. It is commonly said that this decreases the vascularity of the thyroid gland. I wonder if this is true. Is the vascularity of the thyroid gland specific or peculiar to it, and does the preoperative medication greatly influence the vascularity?

I recently had a patient with hyperplastic goiter who had been treated with propylthiouracil; ten days before operation I told her to take ten drops of Lugol's solution three times a day. She said she had taken iodine years ago when she was young. After operation I told her that I thought it would be a good idea if she continued the Lugol's solution for a while and she said, "How can I apply it through the dressing?" This was the first time that I found out she had been putting the Lugol's on the skin of her neck instead of taking it internally. Another patient could not tolerate iodine therapy and had been prepared with just propylthiouracil before operation. It is interesting that, in both these cases, we were not impressed with vascularity of the gland at operation; also the microscopic section of these glands showed no increase in the number of the blood vessels or the diameter of the blood vessels as compared to (1) adenomatous thyroid with hyperthyroidism treated with Lugol's and (2) non-toxic cystic goiter which receives no preoperative medication.

Another thing I would like to discuss is the use of curare in patients who have hyperthyroidism. In hyperthyroidism, I do not believe there is much indication for using curare as part of the anesthesia. In fact, I should like to ask the anesthetists if patients who have a lymphatic hyperplasia may not be sensitive to curare. We know, for instance, that the patients with myasthenia gravis have an enlarged thymus. One of the therapeutic tests in the diagnosis of myasthenia gravis is the sensitivity to curare. In hyperthyroidism there may be an enlargement of the thymus and lymphatic hyperplasia. Recently I was asked to see a patient who had been well prepared with propylthiouracil and Lugol's solution, upon whom the surgeon was just starting to do a thyroidectomy with Baird's solution (pentothal, curare and nitrous oxide) as the anesthetic, when the patient went into collapse. Blood pressure and pulse could not be obtained until supportive therapy was given. I suggested they postpone the operation. Five days later the same procedure was performed without the curare and the operation was uneventful. Also, I have seen a patient with chronic lymphatic leukemia who developed an incarcerated right indirect inguinal hernia. While anesthesia was being induced with pentothal and curare, the patient went into a similar collapse state. I realize that the mechanism of action of curare in myasthenia gravis is located in the myoneural junction and that hyperthyroidism and chronic lymphatic leukemia themselves are serious conditions, but is there a tendency for patients with lymphatic hyperplasia to be sensitive to curare?

Dr. MacKinnon also brings out an interesting observation that patients with hyperthyroidism who are well prepared with propylthiouracil may still develop a thyroid crisis or storm. I should like to suggest the use of spinal anesthesia in such cases with the idea of blocking out the splanchnic nerves to the adrenals.

Dr. Martin Nordland, Minneapolis: I wish to congratulate Dr. MacKinnon on his excellent presentation of a timely discussion. Enough time has elapsed since the introduction of the antithyroid drugs in 1943 to place an evaluation upon the use of thiouracil and its allies in the treatment of hyperthyroidism. In the past, surgery has been very satisfactory for the control of hyperthyroidism, in terms of clinical results. Nevertheless, an adequate medical management is still desirable for those selected patients for whom surgical intervention is contraindicated, or for those in whom a persistent hyperthyroidism remains even after an adequate thyroidectomy.

The antithyroid drugs were at first hailed as a panacea which would ultimately displace the surgical management of hyperthyroidism. Unfortunately, many of the profession have not yet learned that the pendulum soon swung, and that extreme caution has replaced the early acclaim. Clinically, it was widely recognized that the toxic effects of these drugs outweighed their potential value. Accumulated data has caused a more moderate outlook in the preoperative preparation of selected patients with hyperthyroidism. It has never been claimed that any anti-thyroid drug, including Lugol's solution, would bring about a permanent recession in hyperthyroidism. Intensive research by such authorities as Bartels, Williams, Curtis and Swenson has shown that the basic etiological factor which causes hyperthyroidism is the determining cause of recurrence or remission, and this factor is not affected by the antithyroid therapy.

It is my purpose in discussing this paper to emphasize the fact that these drugs should be employed only in the cases with severe hyperthyroidism and to assert that these drugs should not be employed in preparation of patients with adenomas with only a moderate toxicity. I know of no disturbance that requires more judgment of the attending medical advisor than the management of the patient with severe hyperthyroidism. The cases reported by Dr. MacKinnon represent this group. Preoperative, painstaking care, as he has shown, is advisable in spite of time or expense required. However, the severly toxic cases represent only a small percentage of the patients coming for treatment for "goiter." The less toxic cases, and especially the ones with simple adenoma, should not be subjected to dangers of these drugs, the unnecessary long periods of preparation, or the danger of overlooking malignancy in the adenoma.

Swenson and Curtis have further called attention to the increased vascularity created in these nodules by these drugs. The resulting increase in size plus hemorrhage within, have greatly added to the risk of the operation.

The mortality of thyroid surgery in all theatres of surgery is only one-half of one per cent. Thorough research by such authorities as McCullagh, Curtis and others has caused them to conclude that a well-established preoperative management of patients with hyperthyroidism, followed by competent surgery, will remain the treatment of choice until an antithyroid drug which will have a risk less than that of the disease itself is synthesized.

Dr. E. A. Regnier, Minneapolis: I enjoyed Dr. MacKinnon's presentation very much. I have very little to add except to tell of two patients whom I have had occasion to operate upon in the last three months. These two patients somewhat resemble Dr. MacKinnon's cases. One was in the thirty's and had had an operation for hyperthyroidism ten years previously. She was markedly decompensated. I sent her to an internist for about six months for preparation, and she was given iodine with no results. She was then given propylthiouracil and her response was very slow. The cardiac condition improved but not to the point where she was a good surgical risk. After six months of preparation, she took the operation without event. The other patient was one who had had previous therapy in the country and came to the city for operation. There were severe signs of hyperthyroidism. When she began to recover, her metabolism dropped from 68 per cent in two months down to 32 per cent, the pulse dropped to below 90 even on moderate exercise. She was operated upon and the thyroid gland showed almost complete involution and fibrosis, one lobe was much harder than the other. I believe that patients who have had previous hyperthroidism and been prepared with iodine are much more refractory to propylthiouracil and it takes much longer to prepare them. It is difficult to tell just how much time it will take. I believe that unless the patient shows a toxic reaction to propylthiouracil, it is much safer to wait until clinical signs and basal metabolic rates are in accord. I have always felt that enlargement of the thyroid gland under propylthiouracil certainly was not a hyperplasia, and it must be due to vascular engorgement and broader capillary bed. It think that accounts for the increased size.

Regarding curare, I personally will not use curare on a patient who has a toxic myocardium. I think curare is a very dangerous drug in a damaged heart. I operate on all toxic thyroids under local anesthesia with just enough pentothal and enough oxygen to carry them in an unconscious state.

Dr. MacKinnon (closing): Prior to the last ten years, the preoperative preparation of patients with hyperthyroidism was standardized and relatively simple.

(Continued on Page 611)

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RESEARCH IN THE SERVICE OF MEDICINE

✦ Reports and Announcements ✦

AMERICAN COLLEGE OF SURGEONS

The American College of Surgeons will hold its thirty-seventh annual Clinical Congress in San Francisco, November 5 to 9, 1951, with headquarters at the Fairmont Hotel and Civic Auditorium. The thirtieth annual Hospital Standardization Conference is scheduled to be held concurrently, with meetings in the Civic Auditorium, as a part of the Congress. The combined programs will include scientific and technical exhibits, color television, cine clinics, medical motion pictures, scientific sessions, panel discussions, conferences, symposia, official meetings, and forums. Several thousand surgeons and hospital representatives are expected to attend.

Dr. Arthur W. Allen of Boston is chairman of the Board of Regents of the College; Dr. Henry W. Cave of New York is president, Dr. Alton Ochsner of New Orleans is president-elect and will be installed as president on November 5; Dr. Paul R. Hawley of Chicago is the director. Dr. Emile Holman is chairman of the San Francisco Committee on Arrangements. The hospital conference program is in charge of Dr. Paul S. Ferguson, acting assistant director in charge of hospital standardization.

PAN-PACIFIC SURGICAL ASSOCIATION

The Fifth Congress of the Pan-Pacific Surgical Association will be held in Honolulu, Hawaii, from November 7 to 19. The scientific program, which will begin on November 12 and continue through November 16, will include sessions in all divisions of surgery, with papers presented by surgeons from the Pacific area countries.

In addition to attending the surgical conference, physicians may enjoy a delightful vacation in Hawaii and are urged to bring their families with them, with the assurance of luxurious accommodations.

Further information, as well as hotel and travel reservations, can be obtained from the Pan-Pacific Surgical Association, Suite 7, Young Hotel Building, Honolulu, Hawaii.

COURSE IN POSTGRADUATE GASTROENTEROLOGY

The National Gastroenterological Association has announced that its course in postgraduate gastroenterology will be given at the Drake Hotel in Chicago, Illinois, on September 20, 21 and 22.

This year the course will again be under the direction and co-chairmanship of Dr. Owen H. Wangensteen, professor of surgery of the University of Minnesota Medical School, who will serve as surgical co-ordinator, and Dr. I. Snapper, director of medical education of the Mt. Sinai Hospital, New York, who will serve as medical co-ordinator.

Dr. Wangensteen and Dr. Snapper will be assisted by a faculty selected from the medical schools in and around Chicago. Presentations will include the following subjects: diseases of the mouth, diseases of the esophagus, peptic ulcer diseases of the stomach, diseases of the pancreas, cholecystic disease, psychosomatic aspects of gastrointestinal disease, diseases of the liver, diseases of the colon and rectum, and other miscellaneous subjects.

For further information and enrollment, write to the National Gastroenterological Association, Department GSJ, 1819 Broadway, New York 23, New York.

MINNESOTA SOCIETY OF NEUROLOGY AND PSYCHIATRY

A meeting of the Minnnesota Society of Neurology and Psychiatry was held at Rochester on May 26. The program included the following:

Surgical clinics at St. Mary's Hospital, presented by the neurosurgical staff.

Clinicopathologic conference by Dr. George Sayre.

A symposium on cybernetics, with papers presented by Dr. R. G. Mickford, Dr. J. R. Brown, Dr. J. G. Rushton, Dr. D. D. Daly and Dr. H. P. Rome.

A travelogue on Australia by Dr. L. M. Eaton.

MICHAEL REESE HOSPITAL POSTGRADUATE SCHOOL

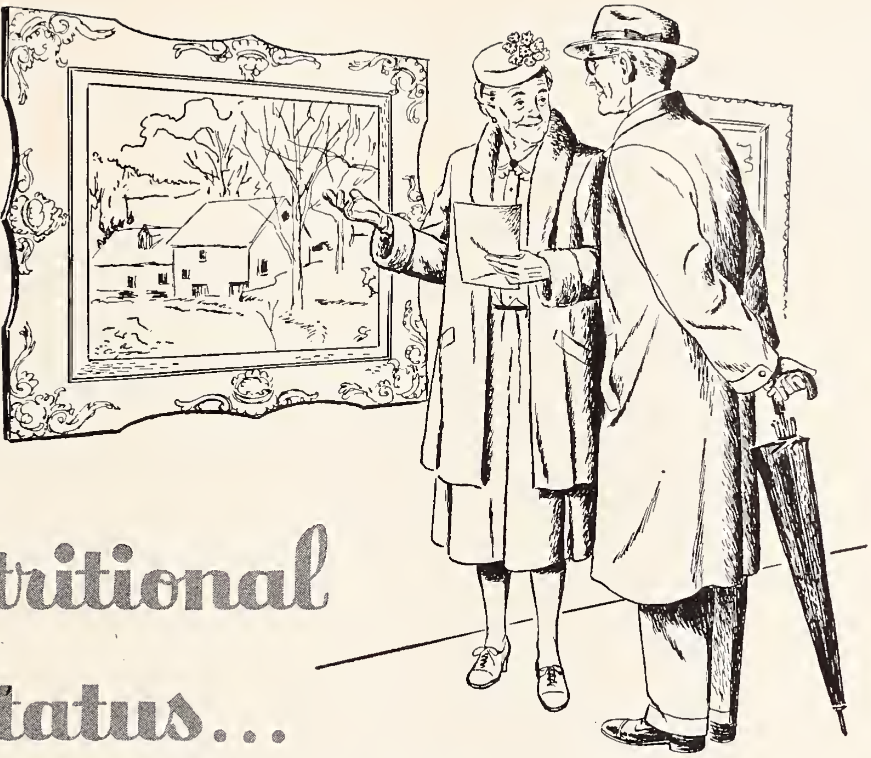
The Michael Reese Hospital Postgraduate School is offering a two-week course in "Diseases of the Endocrines—Physiology and Diagnostic Methods." This full-time intensive course will be held from July 9 to 21 and will consist of a balanced program of basic information and clinical applications. Dr. Rachmiel Levine, director, Department of Metabolic and Endocrine Research, is co-ordinator of the course.

A full-time intensive course in "Hematologic Diagnosis," under the direction of Dr. Karl Singer, will be presented by the Michael Reese Hospital Postgraduate School from July 23 to August 4. This two-week course will offer a review of the present status of hematology and instruction in actual reading of slides of normal and pathological specimens of peripheral blood and bone marrow.

For further information on either course, write Dr. Samuel Soskin, Dean, 29th Street and Ellis Avenue, Chicago 16, Illinois.

Twenty-four per cent of all drivers involved in fatal accidents in the United States last year were between the ages of eighteen and twenty-four.

Ninety-eight per cent of drivers involved in fatal automobile accidents in the United States last year had at least one year's driving experience.



Nutritional Status...

AN IMPORTANT FACTOR IN OLD AGE

A RECENT study[1] of the health and nutritional status of 200 elderly patients and their dietary habits revealed their food intake to be deficient in iron, calcium, protein, and, particularly, B complex vitamins. In many instances the lassitude and premature weakness of the elderly are due to such deficiencies.

Correction by increased intake of ordinarily eaten foods often proves difficult. The quantities that would have to be eaten frequently are more than the individual can consume comfortably.

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[1] Bortz, E. L.: Management of Elderly Patients, Postgraduate Med. 3:186 (Mar.) 1950.

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PHOSPHORUS	0.94 Gm.	VITAMIN C	30.0 mg.
IRON	12 mg.	VITAMIN D	417 I.U.
COPPER	0.5 mg.	CALORIES	676

*Based on average reported values for milk.

Two kinds, Plain and Chocolate Flavored. Serving for serving, they are virtually identical in nutritional content.

In Memoriam

WILLARD LATHROP BURNAP

Dr. Willard L. Burnap, an outstanding citizen of Fergus Falls, died May 9, 1951, at the age of seventy-seven.

He was born at Dover, New Hampshire, January 28, 1874. He attended the public schools of Clear Lake, Iowa, received his B.S. from the University of Minnesota in 1897 and his M.D. from Rush Medical College in 1901. In later years he continued his medical training at Cook County Hospital, Chicago, Harvard Medical School, Chicago Eye, Ear, Nose and Throat Hospital, and at numerous seminars at the University of Minnesota and elsewhere.

Dr. Burnap was a Fellow of the American College of Surgeons and of the Radiological Society of North America. He was also a member of the Masonic order, the B.P.O.E. and the medical fraternity, Alpha Kappa Kappa.

Dr. Burnap was active not only in his local medical society, the Park Region, but in affairs of the Minnesota State Medical Association. He had been a member of the Council of the State Association since 1922, except for the year 1925 when he served as president. He was chairman of the Council from 1941 to 1946. In 1944 he received the Association's highest honor—the Distinguished Service Award and Medal. He served at times as a delegate from Minnesota to the American Medical Association.

He was instrumental in the creation of the Northern Minnesota Medical Association in 1920, served as its secretary and general manager for four years, retiring to become its president. In his presidential address he spoke simply but eloquently of the purpose of this association. "It has come that we may better know our neighbor physicians, learn their hopes and aspirations, profit by their experiences and comfort them in their misfortunes."

Dr. Burnap was a leader in the organization of the North Central Conference on Medical Service, an organization of officers and leaders in medicine in the six states in this area. This was the organization that preceded and led to the formation of the National Conference on Medical Service. Responsible to a large degree for the initiative of this group, Dr. Burnap led it into channels of constructive thought and action for better medical service, and served as president of the National Conference in 1944.

No sketch of Dr. Burnap's life would be complete

New LEVERAGE FOR CONTROL
of Certain Heart and Respiratory Disorders

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For children, palatable Elixir Dorsaphyllin is acceptable and well tolerated. For the hypersensitive, Dorsaphyllin Suppositories are available.

From The Literature
- Bubert and Cook, Bulletin of School of Medicine, Univ. of Maryland, Vol. 32, pp. 175-190, 1948.
- Paul and Montgomery, J. Iowa State Med. Soc., June, 1948.
- Krantz, Holbert, Iwamoto and Carr, J.A.Ph.A., Vol. 36, pp. 248-250, 1947.
- New and Non-official Remedies, 1950, p. 285.

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1. Nettleship, A.: Arch. Dermat. & Syph. 61:669, 1950
2. Brewer, W. C.: Arch Dermat. & Syph. 61:681, 1950

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without mention of some of the community activities in which he took part for the betterment of his fellow men. A charter member of the Kiwanis, he was past president and district councillor, a member of the board of directors and a member of the local committee for boys' and girls' work. He was a member of the Campfire Council, of which he was president for many years. A lover of good music, he was a charter member of the Fergus Falls Concert Association which brought outstanding artists to the city. He was a member of the Federated Church of Fergus Falls.

Dr. Burnap is survived by his wife, the former Mary Merrill whom he married June 25, 1901, and four daughters: Mrs. E. C. Jackson, Mineapolis; Mrs. R. L. Rasche, Beverly, Massachusetts; Mrs. R. C. Bruce, Jr., Montrose, California; and Mrs. T. S. Donoho, Fergus Falls.

The influence of Dr. Burnap's dynamic personality, tempered by his love for his fellow men, will be long and widely felt.

GOTTFRIED WILLIAM CALLERSTROM

Dr. G. W. Callerstrom, Minneapolis, died May 6, 1951. He was sixty-seven years of age.

Dr. Callerstrom was born in Gowrie, Iowa, June 3, 1883. He obtained a B.A. degree from the University of Minnesota in 1903 and his M.D. in 1906. His internship was served at the Swedish Hospital in Minneapolis. He took postgraduate training in Vienna in 1914.

During World War I he served as Captain in the Medical Corps of the Army. From 1923 to 1942, he served as Deputy Coroner of Hennepin County.

A member of the Hennepin County Medical Society, the Minnesota State Medical Association and the American Medical Association, he was also a Mason and a member of Phi Rho Sigma medical fraternity.

Dr. Callerstrom is survived by his wife and three daughters, Miss Goldwyn R. Callerstrom, Mrs. James Grenell and Mrs. Joseph N. Salino.

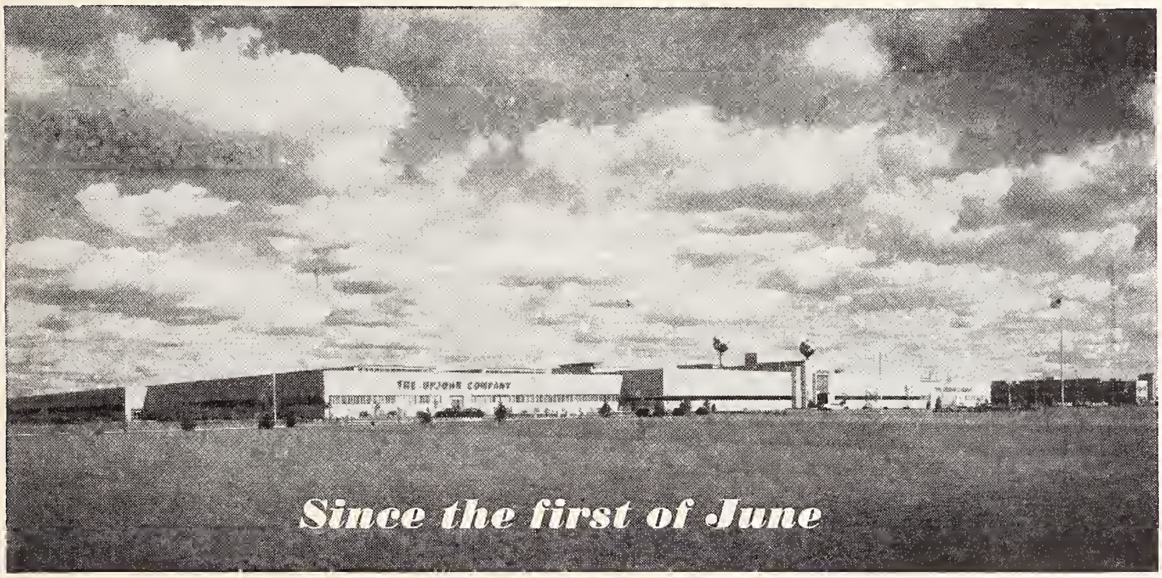
CHARLES GOLDIE SUTHERLAND

Dr. Charles G. Sutherland, formerly an x-ray specialist at the Mayo Clinic before his retirement in 1942, died May 4, 1951.

Born at Hamilton, Ontario, June 19, 1877, Dr. Sutherland obtained the degree of Bachelor of Medicine from the University of Toronto in 1907 and in 1928 the degree of Doctor of Medicine from the same university. His internship was served at Hamilton General hospital and he took postgraduate work at Johns Hopkins.

He practiced at Cobalt and Porcupine, Ontario, from 1910 to 1912 and at Moose Jaw, Saskatchewan, from 1912 to 1915. He was with the British Expeditionary Forces from 1915 to 1918, serving with the rank of major. Upon his discharge from the army, he joined the Mayo Clinic in 1918, becoming a staff member in 1923.

(Continued on Page 615)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◆ Of General Interest ◆

In June, 1951, **Dr. A. J. Chesley,** executive officer of the State Board of Health, will have completed fifty years in the Health Department. He started work as a clerk in June, 1901. During the next twenty years, he served the Health Department in various capacities. He obtained his M.D. degree from the University of Minnesota in 1907. In May, 1921, the Board of Health named him executive officer. Thus 1951 is a double anniversary for "the Chief"—his fiftieth year with the Health Department and his thirtieth as state health officer. Dr. Chesley, dean of state health officers, is one of the few people in the nation who has devoted his entire professional life to public health.

* * *

Eighteen Minnesota physicians, each of whom has practiced medicine for fifty years, became members of the Fifty Club of the Minnesota State Medical Association at the annual meeting at Rochester on April 30, May 1 and 2.

The eighteen physicians are **Dr. Bertram S. Adams,** Hibbing; **Dr. Axcel C. Baker,** Fergus Falls; **Dr. Rudolph A. Beise,** Brainerd; **Dr. James Blake,** Hopkins; **Dr. Edward A. Eberlen** and **Dr. James R. Elsey,** Glenwood; **Dr. John W. Ekblad,** Duluth; **Dr. Robert C. Farrish,** Sherburn; **Dr. Henry T. McGuigan,** Red Wing; **Dr. James A. Sanford,** Savage; **Dr. Francis J. Savage,** Saint Paul; **Dr. Charles L. Sherman,** Luverne; and **Dr. William H. Aurand, Dr. Aeneas MacDonald, Dr. Charles N. Spratt, Dr. Samuel E. Sweitzer, Dr. Hugh J. Tunstead** and **Dr. S. Marx White,** all of Minneapolis.

* * *

There are today some 500 more **registered nurses** in hospitals and related institutions in Minnesota than there were two years ago according to the hospital licensing unit of the Minnesota Department of Health. There is still, however, much greater demand for both registered and practical nurses than there is supply.

* * *

Dr. Martin E. Janssen of the Northwestern Clinic in Crookston was guest speaker at a meeting of the local Rotary Club on April 19. His talk on the "Treatment and Rehabilitation of Paralytics" was illustrated with motion pictures.

* * *

Among physicians attending a three-day continuation course in gynecology at the University of Minnesota on April 9 to 11 were **Dr. E. E. Christensen,** Winona; **Dr. Donald E. Nealy,** Adrian; **Dr. Edwin A. Kilbride** and **Dr. Frederick L. Schade,** both of Worthington.

Dr. Clarence Dennis of Saint Paul, professor of surgery at the University of Minnesota, has resigned to become a full professor and director of the division of general surgery at the new State University of New York. **Dr. Karl E. Karlson,** a U. S. Public Health fellow in surgery who has been working with Dr. Dennis on the mechanical heart project, will accompany him to New York.

Dr. Dennis is a graduate of Central High School, Saint Paul, and he received his M.D. degree from Johns Hopkins University in 1935. He served an internship at the University of Minnesota and received his surgery doctorate in 1940. He is the son of the late Dr. Warren A. Dennis, at one time a leading surgeon of Saint Paul.

* * *

Dr. Clyde A. Undine, Minneapolis, attended the thirty-second annual session of the American College of Physicians in St. Louis, Missouri, April 9 to 13.

* * *

Dr. W. G. Tomhave of the Mesaba Clinic in Chisholm has been appointed village health officer by the Kinney village council.

* * *

Dr. Harvey Nelson, Minneapolis, has been appointed chief surgeon of the Soo Line railroad to succeed **Dr. Frank R. Hirschfield.** A graduate of the University of Minnesota Medical School, Dr. Nelson has practiced in Minneapolis since 1925.

* * *

Dr. Robert S. Berghoff, clinical professor of medicine at Loyola University and Stritch School of Medicine, spoke at the annual banquet of the Clinical Club of Saint Paul on April 14. His subject was "The Management and Outlook of Coronary Disease," and he proved to be an instructive and entertaining speaker. His concept that each attack of angina pectoris represents a thrombotic attack is not in agreement with that of the late Dr. Herrick, a fellow Chicagoan who first described coronary thrombosis.

* * *

Dr. Robert M. Sandeen, formerly of Saint Paul, has moved to Buffalo and has become associated in practice with **Dr. T. J. Catlin** and **Dr. J. J. Catlin.** A graduate of the University of Minnesota Medical School, Dr. Sandeen interned at Bethesda Hospital, Saint Paul, in 1945. He then served in the Army for two years, following which he practiced in Saint Paul.

* * *

Dr. Cecil J. Watson, professor of medcine and head of the department of internal medicine at the Uni-

(Continued on Page 600)

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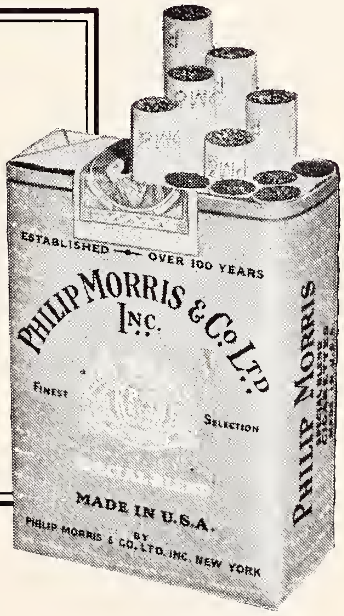
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(Continued from Page 598)

versity of Minnesota, was re-elected recorder of the Association of American Physicians at its meeting in Atlantic City on May 2.

* * *

Dr. L. M. Hammar of the Mankato Clinic was the principal speaker at a session of the forty-third semi-annual clinical course of the Lyon-Lincoln Counties Medical Society in Marshall on April 17. The title of his lecture was "Medical Aspects of Atomic Energy."

* * *

The annual George E. Fahr Lecture was delivered at the University of Minnesota on May 8 by **Dr. George E. Burch,** professor and head of the department of medicine at Tulane University, New Orleans, Louisiana. Dr. Burch's topic was "Certain Mechanical Pecularities of the Heart." The lecture was given in connection with a course in electrocardiography at the University of Minnesota Continuation Study Center.

* * *

The Saint Paul Area Public Health Council elected **Dr. D. R. Gillespie** to a third one-year term as council chairman at its meeting on April 26. Named to the executive committee was **Dr. Ralph L. Olsen,** while **Dr. R. B. J. Schoch** was re-elected to the same committee. The council authorized a committee to study reports and information on fluoridation of municipal water supplies to reduce dental caries.

Dr. H. Bradley Troost, Mankato, was among Minnesota physicians who attended the annual session of the American College of Physicians in St. Louis, Missouri, early in April.

* * *

On April 20, **Dr. John F. Briggs,** Saint Paul, was one of the guest participants in a panel discussion on "The Heart in Relation to Pulmonary Disease" at a joint meeting of the Illinois Chapter of the American College of Chest Physicians and the Chicago Tuberculosis Society.

* * *

Dr. Kenneth L. Nelson, formerly of Balaton, moved to Warroad during the middle of April to open offices for the practice of medicine.

* * *

The U. S. Public Health Service suggested on April 23 that thirty public health units be set up in Minnesota to cover all eighty-seven counties in an effort to co-ordinate hospitals and health departments in the various areas. Oscar R. Ewing, Federal Security Administrator, said that under such a program the local health department, through its link with community hospitals, would be in a better position to establish programs in the control of cancer, diabetes, heart disease, et cetera.

The Public Health Service report suggested how counties could be grouped into units and recommended the minimum number of public health physicians and nurses for each unit. Sample groupings and

(Continued on Page 602)

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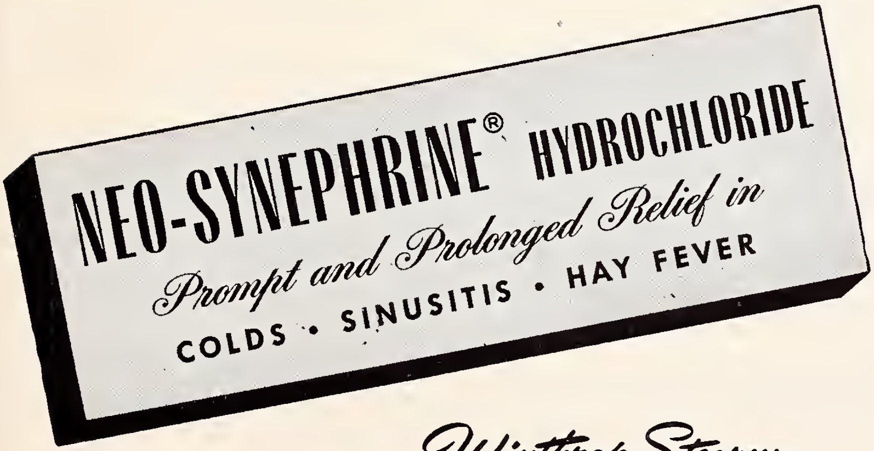
> Neo-Synephrine's "desired effect occurs within from two to fifteen minutes . . ."[3]
>
> "Its action is sustained for two hours or more."[3]

Neo-Synephrine hydrochloride is notable for freedom from sting and for effectiveness on repeated application. There are few complaints of after effects such as burning and nasal congestion . . . and little tendency to develop local sensitivity.[1]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1. Tuft, L.: Clinical Allergy. Philadelphia, W. B. Saunders Co., 1947, pp. 335-336.
2. Hansel, F. K.: Allergy of the Nose and Paranasal Sinuses. St. Louis, C. V. Mosby Co., 1936, p. 769.
3. Kelley, S. F.: Choice of Sympathomimetic Amines. Cornell Conferences on Therapy, II, 1947, p. 156.

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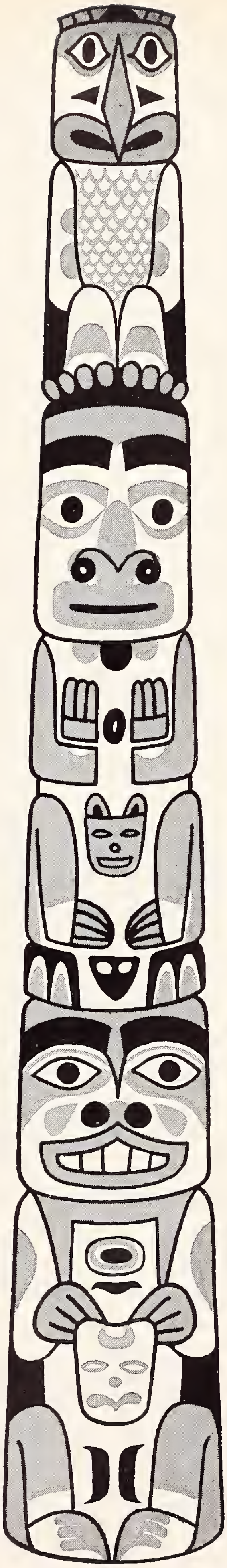

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recommended personnel are as follows: Norman, Polk and Red Lake Counties—one physician and twelve nurses. Benton and Stearns Counties—two physicians and seventeen nurses. Cook, Lake and St. Louis Counties—four physicians and forty-three nurses. Chisago, Ramsey and Washington Counties—seven physicians and seventy nurses.

Mr. Ewing stated that the report was only a guide and not a blueprint of what should be done.

* * *

It was announced on April 24 that **Dr. M. J. Shapiro** would leave the University of Minnesota on July 1 to enter private practice in Los Angeles, California. Director of the out-patient clinic at the new Variety Club Heart Hospital at the University, Dr. Shapiro has been a leader in the fight against rheumatic heart disease for more than a quarter century. Through his efforts during the years, special classes and schools have been made available to children with heart disease who could not attend regular schools.

* * *

Dr. C. L. Sherman, Luverne, was reappointed to the Minnesota State Board of Medical Examiners by Governor Luther W. Youngdahl on May 3.

* * *

Dr. Gaylord W. Anderson, director of the University of Minnesota School of Public Health, has been elected president of the Association of Schools of Public Health.

* * *

Dr. James W. Crump, who guided the destinies of the Hallie Q. Brown House, a Community Chest agency in Saint Paul, for twenty of its twenty-two years, was honored at special anniversary ceremonies on April 29. Dr. Crump, who recently retired as president of the organization, was presented with a plaque in recognition of his years of service.

A graduate of the University of Iowa in 1914, Dr. Crump became the first American Negro to be admitted to the American Medical Association. He practiced in Denver and in Pittsburg, Texas, before moving to Saint Paul. Two years after the Hallie Q. Brown House was founded, Dr. Crump was elected as its president. Under his direction it has grown to be an important center in the Negro community in Saint Paul. Its services include well-baby clinics, conducted twice a week, and social and recreational programs for both children and adults.

* * *

Dr. J. Arnold Malmstrom, Virginia, attended a one-week course in proctology at the University of Minnesota Center for Continuation Study during the middle of April.

* * *

The American Cancer Society motion picture, "Breast Self-Examination," and another film en-

(Continued on Page 604)

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Clinical experience[1,2] and investigative data[3] indicate that the liberal use of meat may not be contraindicated when sodium intake must be restricted. Because unsalted meat contains only relatively small amounts of sodium, while contributing importantly to other nutrient needs, meat deserves special consideration in very-low-sodium diets, in sodium-poor diets, and in no-extra-sodium diets.

Table I lists the amounts of sodium[3] in three kinds of meat. Table II gives the estimated amounts of sodium in hospital diets planned for cardiorenal vascular patients.[4]

SODIUM IN MEAT[3]

	Sodium Provided by 60 Gm. Serving	Sodium Provided by 100 Gm.
Beef, without bone	32 mg.	53 mg.
Lamb, without fat	66 mg.	110 mg.
Pork, without fat	35 mg.	58 mg.

Table I

SODIUM IN HOSPITAL DIETS[4]

Sodium-Poor Diets*				Very-Low-Sodium Diet†
40 Gm. Protein	70 Gm. Protein	100 Gm. Protein	130 Gm. Protein	70 Gm. Protein
400 mg. Na	500 mg. Na	800 mg. Na	1,000 mg. Na	200 mg. Na

Table II

*Foods prepared and served without salt.
†Weighed diet. May contain 4 oz. of unsalted meat.
(Normal diets contain approximately 4 Gm. of sodium daily.)

Hence, the data here shown indicate that relatively generous amounts of meat may be included in low-sodium diets.

Meat serves well in the therapeutic objective of maintaining a high state of nutrition in patients with congestive heart failure or nephritic edema by providing valuable amounts of biologically complete protein and of B complex vitamins, including the recently discovered B_{12}.

---

1. Wheeler, E. O.; Bridges, W. C., and White, P. D.: Diet Low in Salt (Sodium) in Congestive Heart Failure, J.A.M.A. *133*:16 (Jan. 4) 1947.
2. Wohl, M. G., and Schneeberg, N. G.: Dietotherapy (Cardiovascular Disease), in Jolliffe, N.: Tisdall, F. F., and Cannon, P. R.: Clinical Nutrition, New York, Paul B. Hoeber, Inc., 1950, chap. 27.
3. Bills, C. E.; McDonald, T. C.; Niedermeier, W., and Schwartz, M. C.: Survey of the Sodium and Potassium Content of Foods and Waters by the Flame Photometer, Fed. Proc. 6:402 (Mar.) 1947.
4. Mayo Clinic Diet Manual, Philadelphia, W. B. Saunders Company, 1949, p. 113.

The Seal of Acceptance denotes that the nutritional statements made in this advertisement are acceptable to the Council on Foods and Nutrition of the American Medical Association.

American Meat Institute
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(Continued from Page 602)

titled "The Doctor Speaks His Mind" were presented by **Dr. Carleton A. Nelson** of the Worthington Clinic at a meeting in Worthington on April 16. Sponsor of the meeting, which was open to women only, was the auxiliary to the Clavin-Knuth Post of the American Legion.

* * *

Dr. C. Walton Lillehei, instructor and researcher at the University of Minnesota, was awarded the Theobald Smith medal for distinguished work in his field at a meeting in Cleveland, Ohio, on May 2. The medal, which is given by the American Association for the Advancement of Science and which carries a $1,000 cash award, was presented to Dr. Lillehei for his studies on the importance of stress in producing ulcers and of the effects of stress on the heart.

* * *

Dr. Charles W. Rogers, Winona, has been certified by the American Board of Pediatrics. Certification followed a series of examinations taken by Dr. Rogers in Cincinnati, Ohio, late in March. Dr. Rogers is a graduate of the University of Minnesota Medical School and is a partner and chief pediatrician at the Winona Clinic.

* * *

It was announced on May 3 that eight or ten stories would have to be eliminated from the **Mayo Memorial Medical Center,** under construction at the University of Minnesota, because the legislature failed to appropriate additional funds needed due to inflated costs.

When ground was broken for the new building last summer, plans called for a twenty-two-story structure and funds on hand totaled more than $12,200,000. In March the University told the legislature that, because of increased costs, another $2,250,000 would be needed. After failure to get the additional appropriation, University officials announced that all bids on the structure had been rejected and that plans would have to be redrawn completely.

* * *

Dr. Robert B. May, clinical director and assistant superintendent at the Fergus Falls State Hospital, has resigned his position there, it was announced on April 14, and has accepted a position on the staff of the Veterans Hospital at Knoxville, Iowa. Dr. May was assistant superintendent of the Willmar State Hospital before moving to Fergus Falls.

* * *

Dr. Arthur Kirschbaum, associate professor of anatomy at the University of Minnesota, was presented with a medal from the Minnesota Division of the American Cancer Society on April 21. The annual award was given to Dr. Kirschbaum for his "outstanding work" in leukemia research.

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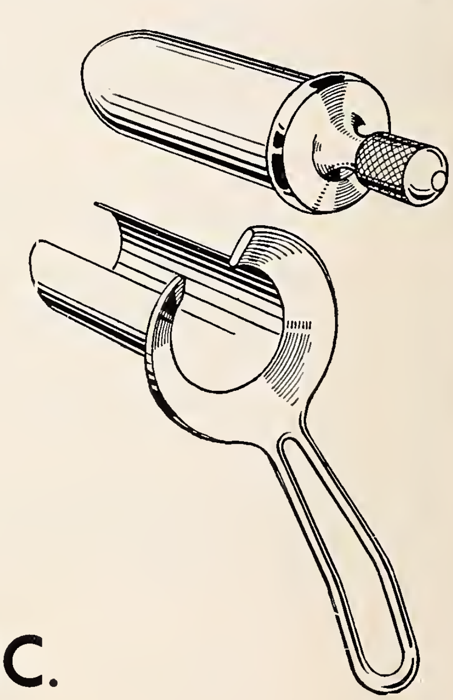

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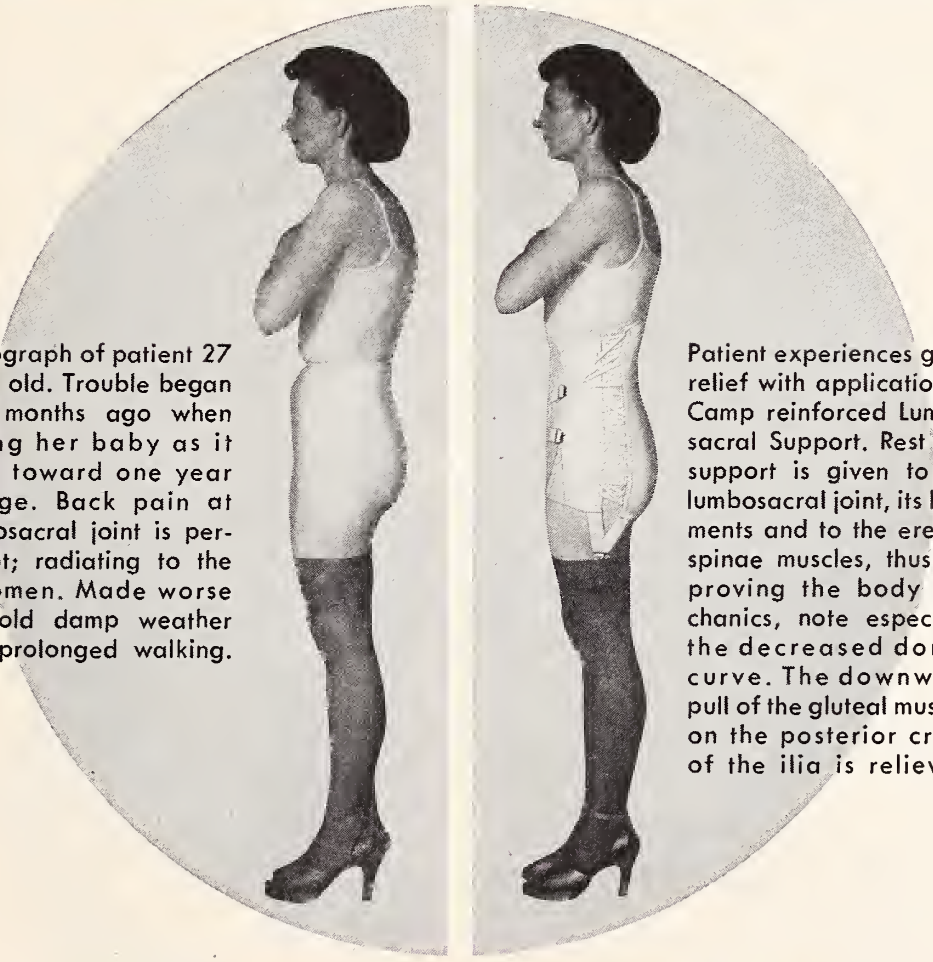

Photograph of patient 27 years old. Trouble began nine months ago when lifting her baby as it grew toward one year of age. Back pain at lumbosacral joint is persistent; radiating to the abdomen. Made worse by cold damp weather and prolonged walking.

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(Continued from Page 604)

The first of a series of PTA-sponsored preschool clinics in the Iron Range was held at Buhl on April 13. At the clinic, sixty-six preschool children were given physical examinations, Mantoux tests and diphtheria inoculations. The clinic was directed by **Dr. W. G. Tomhave** of Chisholm.

* * *

The work done by medical technicians was demonstrated at an open house held in the laboratory of Miller Hospital, Saint Paul, on April 22. Participating in the demonstration were fifteen Macalester College medical technologists completing their training at the hospital. The hospital training program is under the direction of **Dr. Kano Ikeda.**

* * *

Tribute was paid to **Dr. and Mrs. I. George Wiltrout** by residents of the Oslo community at an open house in the Oslo American Legion Hall in April. The program honoring the physician for his years of service consisted of brief talks by some of his friends, musical selections, and presentation of a purse of money.

Dr. Wiltrout has practiced in Oslo since 1920. In addition to the duties of his practice, he has served as village mayor, as a member of the board of education, and as health officer.

* * *

Dr. L. C. Kolb, Rochester, was a speaker at a superintendents' meeting of the Minnesota State Mental Health Program in Minneapolis on April 20. The title of his talk was "Morphologic and Physiologic Changes Following Lobotomy."

* * *

Dr. Gordon R. Kamman, Saint Paul, spoke on "Neuropsychiatric Disorders in General Practice" at a meeting of the Park Region Medical Society in Fergus Falls on April 25. Dr. Kamman was also a speaker at a meeting of the Seventh District Medical Society at Sioux Falls, South Dakota, on May 1. The title of his talk there was "Psychotherapy and Psychosomatics."

* * *

Dr. Sherwood B. Seitz has moved back to Barnesville from Mott, North Dakota, and has reopened offices for the practice of medicine.

* * *

Dr. Philip Thorek, Chicago, was the principal speaker at a meeting of the Hennepin County Medical Society in Minneapolis on May 7. Dr. Thorek, who is clinical assistant professor of surgery at the University of Illinois and associate professor of surgery at the Cook County Graduate School of Medicine, discussed acute conditions of the abdomen in his talk.

* * *

An inscribed wristwatch was presented to **Dr. E. A. Pasek** by his friends in Carlton before he left on May 5 for Randolph Field, Texas, to enter the

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* * *

At a meeting of the Memphis and Shelby County Heart Association in Memphis, Tennessee, on April 25, **Dr. W. F. Kvale** of Rochester presented a paper entitled "The Diagnosis and Treatment of Occlusive Arterial Disease of the Extremities."

* * *

The Clearwater County Clinic in Bagley held a formal open house for the public on May 5. The new twelve-room clinic is in a building which was formerly the old Clearwater Hospital but which has been completely remodeled and redecorated. The staff of the clinic now includes **Dr. L. J. Larson** and **Dr. Bernard S. Nauth.**

* * *

It was announced on May 3 that **Dr. Cherry B. Cedarleaf** had ended her association in practice with Dr. L. H. Rutledge and Dr. C. W. Moberg at Detroit Lakes and that she planned to open her own practice at Mahtomedi, near White Bear Lake.

* * *

Dr. C. H. Scheifly, Rochester, spoke on "Difficulties in the Diagnosis of Coronary Artery Disease" at a meeting of the Marshall County Medical Society at Marshalltown, Iowa, on May 1.

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Among Minnesota physicians who attended a course on the treatment of victims of atomic bombs at the University of Minnesota Continuation Center on May 26 and 27 was **Dr. John C. Vezina** of Mapleton.

* * *

Dr. S. Friefeld of Brookings, South Dakota, has become associated on a part-time basis with the staff of the Weiner Memorial Hospital at Marshall. Dr. Friefeld, a radiologist who serves on the staffs of several southwest Minnesota hospitals, is available at the Weiner Hospital on Thursday of each week.

* * *

Dr. John B. Erich, Rochester, participated in a course on cancer at the University of Nebraska at Lincoln, Nebraska, on May 8. The subject of his presentation was "Cancer of the Mouth."

* * *

In April, **Oklahoma** became the fourth state to adopt a law providing for use in medical research dogs ordinarily killed in public pounds. The law licenses research laboratories eligible to receive animals for experimental use and provides for inspection of laboratories by the State Department of Public Health. Such provision stretches dollars contributed to heart, cancer and other research funds.

* * *

Major General David Grant, wartime Surgeon General of the Air Force, on May 1 became director of the American Red Cross National Blood Program, a new position. He also became medical director of the American Red Cross, replacing Dr. G. Foard McGinnes, who has resigned effective July 15. Dr. Grant will direct all phases of the Red Cross blood program. The program now provides blood for military requirements, for civilian needs and for plasma stockpiling for civil defense.

HOSPITAL NEWS

Dr. C. C. Craig was re-elected chief-of-staff of the **Falls Memorial Hospital,** International Falls, at the annual staff meeting on April 9. Dr. F. G. Chermak was named vice president of staff, a new office, and Dr. D. M. Potek was elected secretary-treasurer.

* * *

A psychiatric hospital has been opened by **Immanuel Hospital** at Mankato. Although it is an integral part of the main hospital, the unit is housed in a separate building on the grounds. Facilities for all types of psychiatric and neurological treatment are available.

Mrs. Karla Miller, a graduate of Mounds Park Hospital, is in charge of the nursing staff at the psychiatric unit. Dr. William Chalgren is staff advisor.

* * *

Dr. John A. Thabes, Sr., oldest staff member of **St. Joseph's Hospital** in Brainerd, turned over the first shovel of earth in ground-breaking ceremonies on April 24 for a new two-million-dollar hospital building. The new structure, which will house 117

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beds and 28 cribs, is being constructed just south of the old St. Joseph's Hospital building. Completion of construction is expected within two years. Cost of the hospital will be paid by the Benedictine Sisters, with the aid of a government grant.

* * *

About 2,000 people inspected the facilities of the new **Triumph-Monterey Community Hospital** at an open house held on April 15. Visitors were conducted through the new building in small groups and heard detailed discriptions of the equipment and functions of the hospital. Ice cream, coffee and cookies were served by members of the hospital auxiliary. It was announced that the hospital would probably be opened to patients on April 23.

* * *

At a meeting of the staff of the **Community Hospital** in Princeton on April 16, Dr. William T. McManus, Princeton, was elected president. Named as vice president was Dr. D. J. Sanderson, Princeton, and as secretary, Dr. Norman Metcalf, Onamia. The hospital now has seventeen physicians, from five cities, on its staff.

* * *

It was announced on April 24 that thirty-five staff members of **Northwestern Hospital,** Minneapolis, were serving as a "pilot" class in studying a complete program of standard, advanced and instructor first aid, including special techniques for atomic bomb injuries. The class included physicians, nurses, and administrative and maintenance personnel. It was planned that the thirty-five trainees would later teach the remaining hospital employes the newest first aid techniques. The training plan was part of Northwestern Hospital's program for civil defense in case of bombing attack.

* * *

The **Blue Earth Community Hospital** board reported to the city council on April 17 that although the hospital had been faced with a $3,000 deficit in January, it was well into the "black" for the first quarter of 1951. The change in financial condition, it was pointed out, was due to very heavy patient traffic during the three-month period. The hospital board stated that because of the increased patient traffic it was probable that additional personnel would be required. The board reported that it was well aware that the hospital was a nonprofit institution and that it would be kept that way.

* * *

Dedication of the new treatment and reception center at the **Hastings State Hospital** was held on April 27, attended by about 300 patients, staff members and guests. Included in the dedication ceremonies were brief talks by Dr. Ralph Rossen, state mental health commissioner, and Governor Luther W. Youngdahl.

The new two-story brick building was completed in March at a cost of almost a million dollars. One of the most completely equipped centers of its kind, it has a forty-bed capacity and contains an operating room, x-ray room, laboratory, dental office, cafeteria, barber and beauty shops and library.

BLUE CROSS-BLUE SHIELD NEWS

The annual meeting of National Blue Cross-Blue Shield plans was held at Biloxi, Mississippi, April 15 through 18, last. Several officers and executive personnel of Minnesota Blue Cross and Blue Shield were in attendance and participated in the program. Progress of voluntary hospital and medical care was reviewed and much valuable information pertaining to administration of the constantly expanding voluntary prepaid plans was obtained.

At the recent joint meeting of the Council of the Minnesota State Medical Association and the Directors of Blue Shield, in Rochester, April 30, increasing the number of Blue Shield participating physicians received major emphasis. In an attempt to secure as nearly as possible 100 per cent participation in Minnesota Blue Shield of the practicing Minnesota physicians, it was voted that each Councilor would be furnished a list of the nonparticipating doctors in his councilor district, and he in turn would personally contact the non-participating doctor inviting his enrollment. These lists will be distributed within the very near future and it is hoped will result in the enrollment with Blue Shield of the remaining doctors in private practice in Minnesota who up to the present time have not seen fit to enroll.

All officers were re-elected, including: Dr. O. I. Sohlberg of Saint Paul as President; Dr. R. R. Cranmer of Minneapolis as Vice President; Dr. C. A. McKinlay of Minneapolis as Secretary, and Dr. W. A. Coventry of Duluth as Treasurer. Also re-elected were the four directors whose terms expired in 1951: Dr. J. F. Norman of Crookston; Dr. E. J. Simons of Minneapolis; Dr. L. L. Sogge of Windom, and Dr. W. W. Yaeger of Marshall.

Blue Shield paid a total of 19,224 claims during the first three months of 1951 as compared with 10,289 claims during the same period of 1950. Payments to date this year total $689,703.07 as compared with $411,133.84 for the same period of 1950. With the volume of business transacted it becomes increasingly important that careful attention be given to all details in the payment of medical claims. All claims presented should be complete as to the patient's name and birthdate, the subscriber's name and address, the type of service rendered, the place of service, and, if hospitalized, the name of the hospital and the admission and discharge date, the doctor's signature and his address. If the reports when initially submitted contain all the above listed information, disposition of the claim can be expedited.

The Blue Shield contract allows for payment to only one doctor who may be in attendance on any one case unless the second doctor is treating the patient for a serious medical complication. The surgical allowance provided by Blue Shield is meant to include the actual surgery as well as the pre- and postoperative care during hospitalization, and only in cases of serious medical complications can a medical allowance be provided.

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Surgical Anatomy and Clinical Surgery, two weeks, starting July 23, August 20, September 24.
Surgery of Colon and Rectum, one week, starting September 17, October 15.
Esophageal Surgery, one week, starting October 15.
Thoracic Surgery, one week, starting October 8.
Gall-bladder Surgery ten hours, starting October 22.
Breast and Thyroid Surgery, one week, starting October 1.
Fractures and Traumatic Surgery, two weeks, starting October 8.
GYNECOLOGY—Intensive Course, two weeks, starting September 24, October 22.
Vaginal Approach to Pelvic Surgery, one week, starting September 17, November 5.
OBSTETRICS—Intensive Course, two weeks, starting September 10, November 5.
MEDICINE—Intensive General Course, two weeks, starting October 1.
Gastroenterology, two weeks, starting October 15.
Gastroscopy, two weeks, starting July 16.
Electrocardiography and Heart Disease, two weeks, starting July 16.
Liver and Biliary Diseases, one week, starting September 17.
PEDIATRICS—Cerebral Palsy, two weeks, starting July 9.
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Many claims are presented from both the surgeon and the attending physician, and since only one of them can be paid by Blue Shield in most cases, correspondence is often necessary with the resultant delay in processing. It is suggested that the surgeon and the attending physician decide between themselves which of them is to present the claim for Blue Shield benefits thereby eliminating the need for the Blue Shield office to make that determination.

On April 21, 1951, the third non-group campaign for Blue Cross and Blue Shield closed after a total of 13,850 inquiries or requests for enrollment had been received. Of this number, 3,017 inquiries were directed to Cedric Adams in response to his spot radio announcements. Applications from 4,688 persons were sent to the Blue Cross-Blue Shield office by mail and 3,965 inquiries were received by telephone. In addition, 2,180 requests had been received prior to the announced opening date of the campaign. Applications for non-group contracts are carefully screened with reference to the applicant's medical history, and, if necessary, riders are attached to the contract. Such screening is required due to the higher incidence of illness among the people who apply for a non-group contract.

Reports for the first quarter of 1951 show that Minnesota Blue Shield enrollment as of March 31, 1951, included 433,128 participant subscribers and the non-group enrollment described means a material increase in the near future.

During the first three months of this year 41,020 Blue Cross claims were incurred requiring 234,086 days of hospital care compared with 38,934 claims and 223,137 days of hospital care during the same period of the previous year. Total payment for hospitalization expense for the first three months of this year was $2,821,097 compared with $2,464,501 for the same period a year ago. Out of every 1,000 contracts covered during the first three months of this year, 434 used hospital care compared with 426 during the same period of last year. The average hospital expense per day for the first three months of this year was as follows: January, $11.71; February, $11.81; March, $12.60.

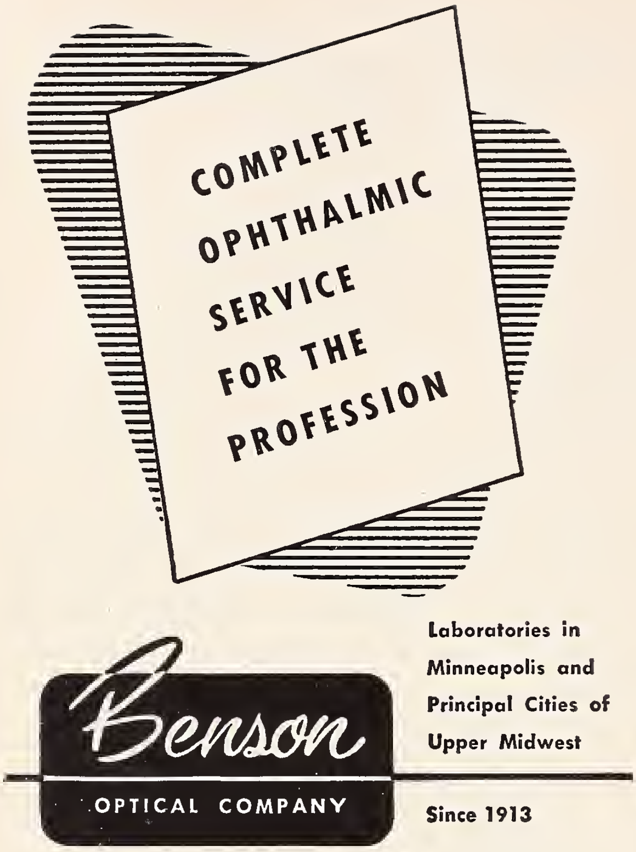
MINNESOTA ACADEMY OF MEDICINE

(Continued from Page 590)

The patients were given Lugol's solution for two or three weeks and then operated upon. Nowadays the preparation seems a bit more complicated with the newer drugs. There are advantages in using the antithyroid drugs for the preoperative treatment of these cases, but there are also certain disadvantages, besides the toxic reactions, which have been presented this evening.

I wish to thank all the doctors who took part in the discussion.

WALLACE P. RITCHIE, M.D., *Secretary*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BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical Libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

HANDBOOK OF MEDICAL MANAGEMENT. Second Edition. Milton Chatton, A.B., M.D., Instructor in Medicine, University of California Medical School, San Francisco; Sheldon Margen, A.B., M.D., Clinical Instructor in Medicine, University of California Medical School; and Henry D. Brainerd, A.B., M.D., Assistant Clinical Professor of Medicine and Pediatrics, University of California Medical School, San Francisco, Assistant Clinical Professor of Pediatrics, Stanford University School of Medicine, Physician in Charge, Isolation Division, San Francisco Hospital. 507 pages. Price $3.00, flexible binding. Palo Alto: University Medical Publishers, 1951.

TUBERCULOSIS AMONG CHILDREN AND ADULTS. Third Edition. J. Arthur Myers, M.D., Ph.D., Physician in Charge, Chest Clinic, Students' Health Service, University of Minnesota, Chief of Tuberculosis Service, Minneapolis General Hospital, Professor of Medicine, Preventive Medicine and Public Health, Medical and Graduate Schools, University of Minnesota, Minneapolis. With introduction by Allen H. Krause, M.D., Late Lecturer in Medicine, Johns Hopkins University, Past Editor, American Review of Tuberculosis, Baltimore, Maryland. 894 pages. Illus. Price $12.50, cloth. Springfield, Illinois: Charles C Thomas, 1951.

MEDICINE OF THE YEAR. School of Medicine, Vanderbilt University. 2nd issue. Edited by John B. Youmans, M.D., Dean, Philadelphia: J. B. Lippincott Co. 1950. 204 pages. Price $5.00.

This book is set up in five sections devoted to Internal Medicine, Psychiatry, Obstetrics and Gynecology, Pediatrics, and General Surgery. Each section is headed by a telegraphic, new-letter type summary of significant advances and developments of the year. These are covered in more detail in paragraphs that follow.

The size of this book does not allow coverage of all topics deemed important by individual readers; however, a very competent staff has edited the individual sections; in general, concise and interesting summaries of each subject are the rule. The book would appear to be helpful to anyone wishing a quick review of recent advances and the bibliography at the end of each section is especially valuable.

This is the second volume of *Medicine of the Year;* one is published yearly beginning in 1949.

R. D. Mooney, M.D.

PAUL EHRLICH. Martha Marquardt. With an introduction by Sir Henry Dale. 255 pages. Price $3.50. New York: Henry Schuman, 1951.

This is a pleasant readable book about Ehrlich as he was known to his secretary, Martha Marquardt. Her association with him in his daily work lends an opportunity for her to reveal many interesting anecdotes concerning Ehrlich. This book is in essence an extension

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of her original volume, "Paul Ehrlich als Mensch und Arbeiter," and as such is more in the nature of a biography.

The author gives an interesting account of Ehrlich, not only as a scientist and humanitarian but also as a most interesting and lovable personality. The story of his struggles and finally the development of Salvarsan are the outstanding features of the volume.

The book can be highly recommended to both the professional and lay person because of the fascinating story it tells.

THE ESOPHAGUS AND PHARYNX IN ACTION

(A Study of Structure in Relation to Function). William Lerche, M.D., formerly Associate Professor of Surgery, University of Minnesota. Springfield, Ill., Charles C Thomas, 1950. 222 pages, 93 figures. $5.50.

William Lerche, formerly an associate professor of surgery at the University of Minnesota, was stimulated to make the study necessary to write this monograph by the uncertainties about the closing mechanism at the gastro-esophageal junction. He approached the study of pharyngeal and esophageal function (as the subtitle of the monograph implies) anatomically, by meticulous dissection and examination of a hundred specimens of human esophagi from the Department of Anatomy at the University of Illinois. Correlation of the anatomic findings, particularly as they are reflected in the act of regurgitation, with previous physiologic, roentgenologic and clinical research on man and animals by others,

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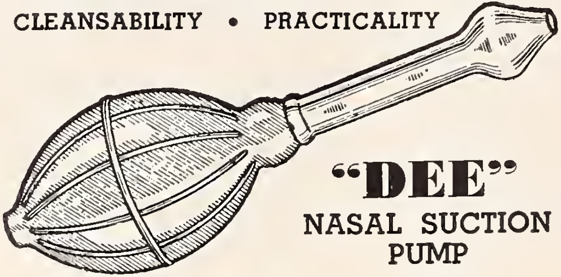

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plus scattered illustrative clinical cases, yields a logical concept of normal function of the pharynx, esophagus and cardia. The presence of a pharyngo-esophageal and a gastro-esophageal vestibule are demonstrated repeatedly, as is the present of an inferior esophageal sphincter and a constrictor cardiae.

The necessarily detailed anatomic discussions make for difficult reading in parts. The illustrations are excellent. The modest number of roentgenograms reproduced as shaded diagrammatic sketches lose nothing in such reproduction and serve well to orient the anatomic detail with clinical examination of the esophagus.

Other studies of pharyngo-esophageal function have been made with emphasis on endoscopic, roentgenologic or physiologic methods, but this monograph stands alone in medical literature in its demonstration, correlation and translation of anatomic detail into terms of function. It should be read by radiologists, endoscopists, gastroenterologists and thoracic and general surgeons.

Henry G. Moehring, M.D.

THE USE OF PEDICLE FLAPS OF SKIN IN PLASTIC SURGERY OF THE HEAD AND NECK. By Gordon B. New, M.D., F.A.C.S., Professor of Plastic Surgery, and John B. Erich, M.D., F.A.C.S., Associate Professor of Plastic Surgery. Both of Graduate School, University of Minnesota, Minneapolis, and Section on Laryngology, Oral and Plastic Surgery, Mayo Clinic, Rochester, Minnesota. 104 Pages. Illus. American Lecture Series Publication Number 56. Price $3.00. Springfield, Ill.: Charles C. Thomas, 1950.

Pedicle skin flaps have many advantages over ordinary skin grafts, since they carry their own blood supply with a substantial layer of subcutaneous tissue. They are particularly useful about the head and neck for covering severely scarred areas, chronic ulcerations, exposed bone, perforations in the cheek and the reconstruction of lost organs, such as the nose, eyelid, et cetera.

This monograph by Doctors New and Erich, based on their wide experience at the Mayo Clinic, deals with the construction and migration of skin flaps about the head and neck.

Although the work is limited to plastic surgery about the head and neck, the basic principles set down will be of value to anyone doing reconstructive surgery.

Edward W. Sickels, M.D.

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IN MEMORIAM

Charles Goldie Sutherland

(Continued from Page 596)

Besides being a member of the Olmsted-Houston-Fillmore-Dodge County Medical Society, the Minnesota State Medical Association and the American Medical Association, Dr. Sutherland was an Assistant Professor of Radiology in the Mayo Foundation, a Fellow of the American College of Radiology, a member of the Minnesota Radiological Society, the Radiological Society of North America, the American Roentgen Ray Society and an Honorary Member of the Canadian Radiological Society. He also belonged to the medical fraternity, Nu Sigma Nu.

The American Trudeau Society, medical section of the National Tuberculosis Association, has approved the administration of BCG vaccine to nurses, physicians and hospital attendants, who have negative tuberculin tests, because these individuals are almost constantly exposed to tuberculous infection from known and unknown tuberculous patients. It also approves BCG for (1) the Indians, (2) inmates and attendants in institutions for mental patients, and (3) in slum areas in certain large cities where proper housing and living conditions have not as yet been achieved. For the same reason it is justified as a temporary expedient in some countries where the tuberculosis death rate is high and facilities for isolation and treatment almost non-existent. The approval of the Trudeau Society for the use of BCG under these conditions was given with the full knowledge that only slight protection would be achieved and in no sense as a substitute for an adequate program of case finding, isolation, and treatment.—*The NTA Bulletin,* David T. Smith, M.D., March, 1951.

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INFANT MORTALITY IN MINNESOTA, 1950

(Continued from Page 550)

in rats and guinea pigs. Swan and others have pointed out the effects of German measles during the first trimester of pregnancy in producing malformations such as cataracts, cardiac defects, congenital deafness, and dental defects. Although acquired malformations are for the most part preventable, there are as yet insufficient data upon which to base a program for the control of congenital anomalies. The recent advances in pediatric surgery for the treatment of certain congenital malformations previously considered uncorrectable makes it particularly important for physicians to diagnose such anomalies as soon as possible after birth.

The State Department of Health is planning a co-operative study of neonatal mortality similar to the study of maternal mortality now in progress. The proposed study should prove to be as effective as the one on maternal mortality in emphasizing the importance of an early diagnosis as well as the need for a thorough autopsy and in pointing out preventable deaths and developing means for reducing infant mortality in Minnesota. However, further studies of the causes of immaturity, stillbirths and congenital malformations are necessary before it will be possible to develop adequate preventive programs.

Summary

1. A new low in infant mortality was reached in Minnesota in 1950 with a rate of 25.0 per 1,000 live births.

2. The chief causes of death were immaturity, congenital malformations and birth injuries accounting for 61 per cent of all infant deaths.

3. Immaturity was the eighth leading cause of death among all causes in 1950 and congenital malformations were in ninth place.

4. Seventy-six per cent of infant deaths occurred under one month and only 24 per cent between one month and one year.

5. Any sizable reduction in total infant mortality must be achieved during the neonatal period, with emphasis on reduction in deaths due to immaturity, congenital malformations and birth injuries, which together are responsible for 70 per cent of the mortality during the first thirty days of life.

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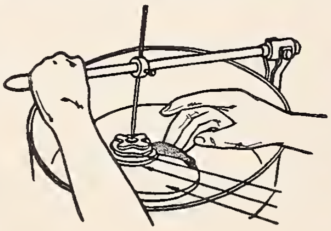

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Minnesota Medicine

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

Volume 34 **July, 1951** **Number 7**

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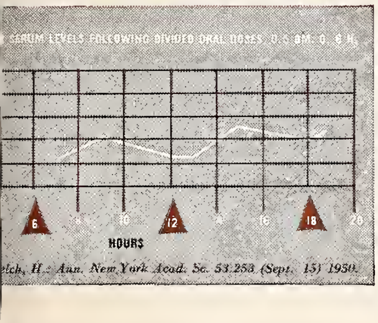

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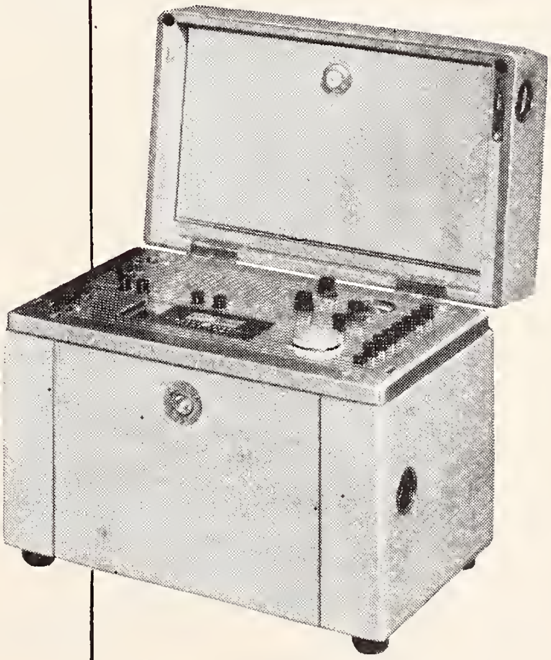

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MEAT in the Dietary Treatment of Ulcerative Colitis...

Of utmost importance in treating ulcerative colitis is the support of the nutritional state of the patient with a diet providing generous amounts of protein, vitamins, minerals and calories but giving a minimum of intestinal residue.[1, 2] Studies have shown that the most urgent nutritional need is for protein.[3] Other investigations have disclosed that patients with colitis display abnormally low serum levels for almost every vitamin.[4] Since most of these patients have anorexia, tempting food is essential for stimulating the appetite.

In particular, meat offers distinct advantages in maintaining the nutritional status and vigor of the colitis patient. Meat furnishes an abundance of protein, B complex vitamins and iron. Its protein contains all the indispensable amino acids in biologic proportions for growth and repair of tissues. Its B vitamins include thiamine, riboflavin, pyridoxine, niacin, and the recently discovered B_{12}. Being almost completely digestible, meat yields negligible intestinal residues which are non-irritating and non-stimulating to the intestinal musculature.

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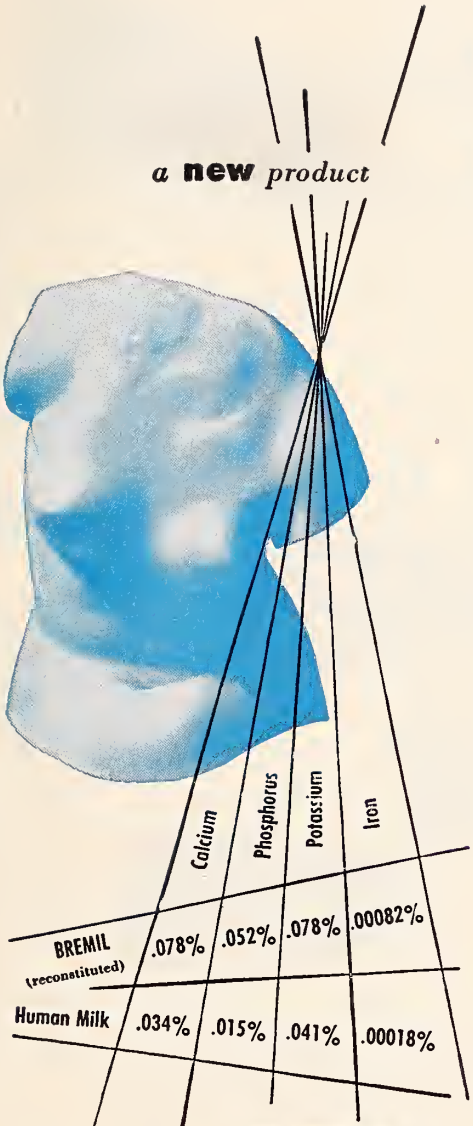

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*Fry, C. O.: J. Am. M. Women's A. 4:51 (Feb.) 1949

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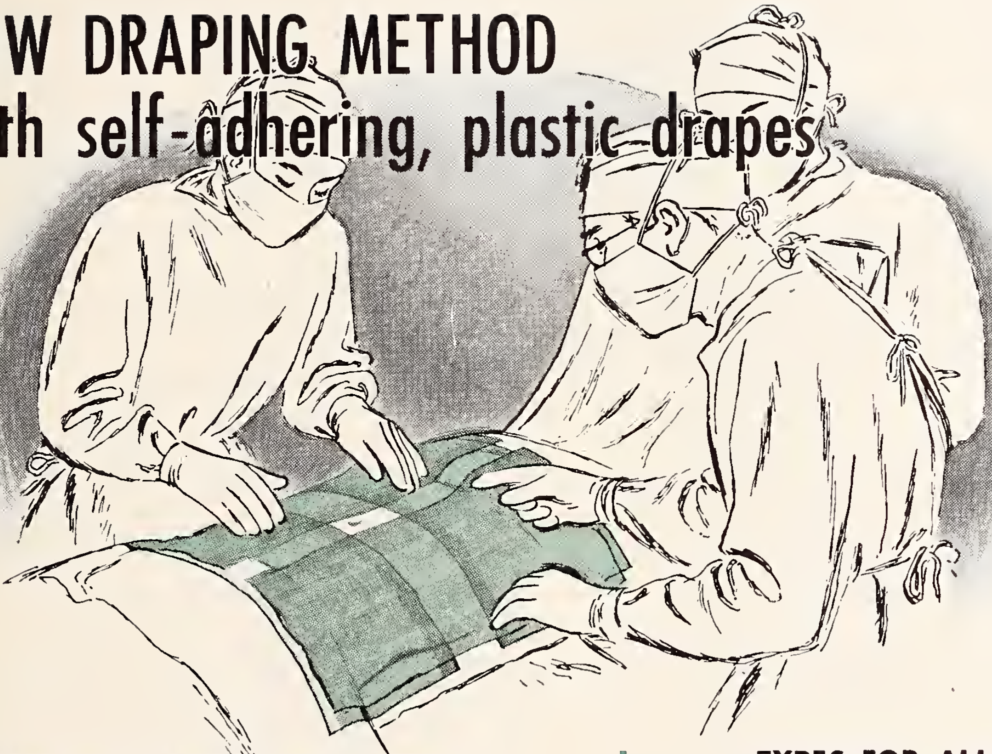

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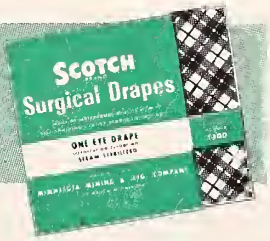

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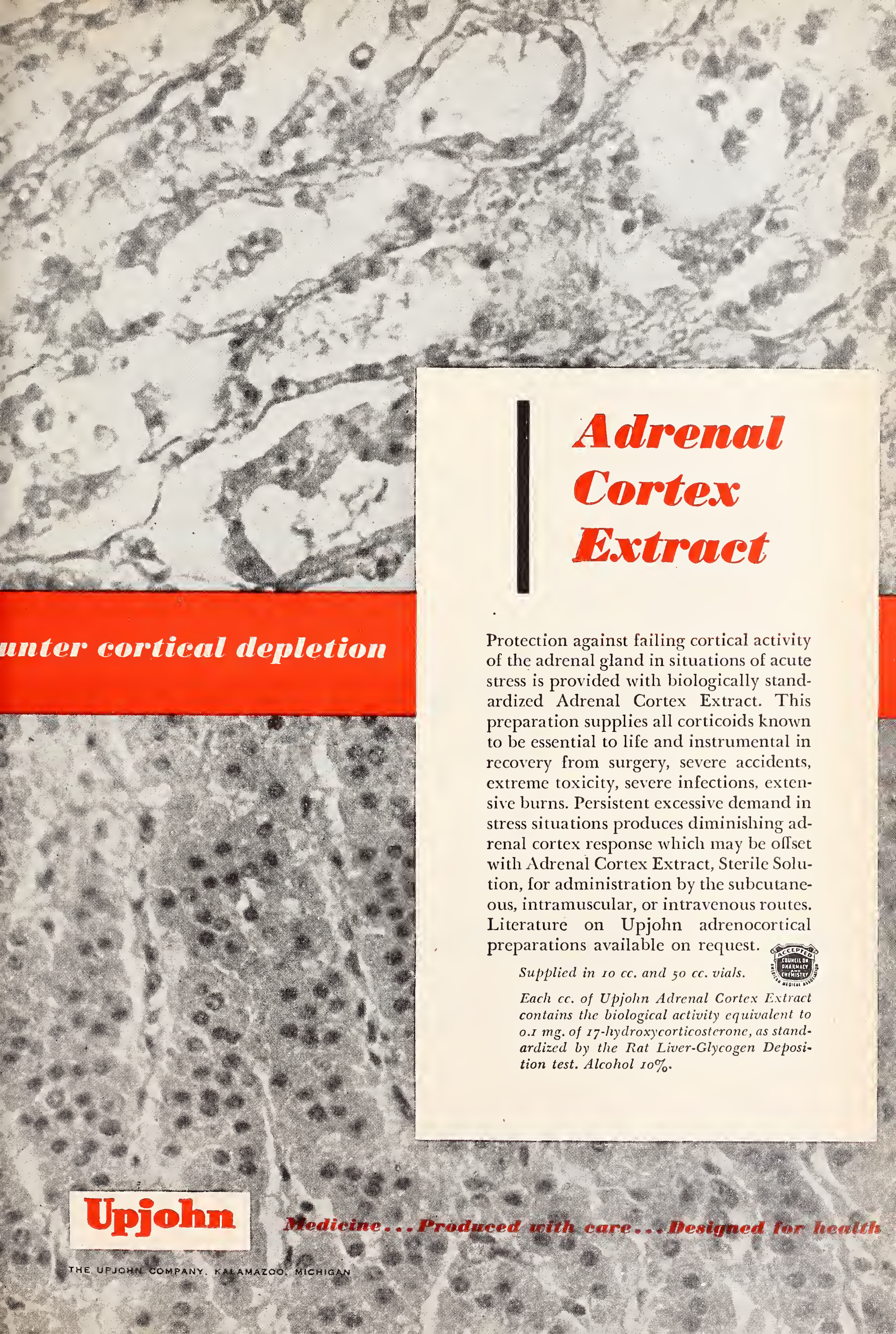
REFERENCES: Spielman, A. D. (1950), N. Y. St. J. Med., 50:2297, Oct. 1. Brown, E. A., et al. (1950), Ann. Allergy, 8:32, Jan.-Feb. Jenkins, C. M. (1950), J. Nat. Med. Assn., 42:293, Sept. Cullick, Louise, and Ogden, H. D. (1950), South. Med. J., 43:632, July. Ehrlich, N. J., and Kaplan, M. A. (1950), Ann. Allergy, 8:682, Sept.-Oct.



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Minnesota Medicine

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

Volume 34 **July, 1951** **Number 7**

FROM STONE AX TO ATOM BOMB

J. F. NORMAN, M.D.
Crookston, Minnesota

THE PHYSICIAN has a very complete knowledge of man's physical make-up from his contact with the individual through study of anatomy and physiology in medical school and thereafter. Would it not be well to extend that study to include mankind as a whole and its progress to date? Man is not doing too well at present. His is a sick civilization now.

Man has had a long existence on this earth, probably about 500,000 years. Evolution had been going on for millions of years previously, and out of the past there developed an animal with better possibilities than the beasts around him: he was endowed with a good brain. He lived on the same level as the animals and in competition with them for such food as he could gather. Later he hunted such animals and was hunted by them. He had no cultural background to help him, and every tool had yet to be invented. He probably had no organized speech. He was not a very promising individual. He lived much as do the gorillas today.

After some hundreds of thousands of years he finally discovered the use of a stone hand ax; later the spear was evolved. He still remained a food gatherer. A change came about with the advent of the great glaciers with the complete disappearance of these very primitive men, the so-called Neanderthals who were perhaps not ancestral to us. They were replaced by a modern type of man. This was about 20,000 to 30,000 years ago. Man lived by the chase. He probably lived in small groups around caves or in sheltered spots. Oddly enough, these primitive men proved to be good artists and produced excellent cave paintings. Today man has accomplished a most spectacular advance in his progress through the long climb from savagery to civilization. He started out in competition with the wild animals around him. He was not so well fitted for life in a new world as they, but he had a brain which enabled him to cope with his surroundings. While the animals remain today as they were thousands of years ago, man adapted himself to various conditions.

After the old stone age came a surge of very great advancement in which man became a food producer instead of a food gatherer, starting about 5,000 B. C., or earlier. Man gathered various seeds such as wheat and oats and stored them for food. He noticed that some of the seeds, dropped on the ground, took root and grew. He also found that the wild cattle, pigs, and sheep could be tamed. He learned to use polished stone axes and used various stone tools. Many lived in wooden houses on their hand-cultivated farms. Some spun wool and flax, and were comfortable and presumably fairly well satisfied with life.

Hooton states that "there are no anatomical or cultural evidences that indicate that progressive evolution of the human brain and of the human intelligence has continued since men of the late stone age, about 5,000 years B. C., succeeded in domesticating animals and cultivating plants."

Even in the stone age, man's relations with his neighbors were not always peaceful. Earthen walls and stockades were built to repel the enemy. A skull taken out of a tomb of this age in Sweden

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President's Address presented at the annual banquet of the Minnesota State Medical Association, Rochester, Minnesota, May 1, 1951.

contains a flint arrowhead still sticking in one eye socket, while in France human bones have been found with flint arrowpoints driven deep into them. Weapons were not so efficient as the atom bomb and their scope was limited, but a man was just as dead after a stone age arrow point entered his brain as he would be if he were near the center of an atom blast. Progress continued with perhaps a tribal type of government on a village economy.

About 3,000 years ago the Semites rapidly developed a new culture. They developed local governments and had well built cities at this time. Judea had a culture high in ideals while as a world power it was of little importance either in trade or war. Monotheism was the distinguishing feature of the religion of Judea. Out of Judaism arose Christianity with its emphasis on man's rights as an individual; his responsibility to his fellow man; the dignity of man; and his moral sense of right and wrong. These early Semites, and also the Egyptians, developed a written language and kept records. The West took more than 1,000 years to produce Greece and later Rome. Our ancestors in Northwestern Europe were still in a stone-age culture and were only semicivilized.

Civilization may be defined as a state of social culture characterized by relative progress in the arts, sciences, and statecraft. Mankind by its unaided efforts brought about an improvement in culture to the extent that it could be classified as civilized. All mankind has a twofold heritage: its physical structure and its civilization. The former is inherited and follows a pattern which has not changed for thousands of years. Civilization, on the other hand, which includes religious beliefs, language, the arts, and manifestations of the human mind, must be assimilated anew by each generation to the degree that circumstances will permit, through imitation or instruction. When man first chipped a piece of flint to make a tool or weapon he was on his way upward. It meant a beginning of co-ordination of mind and hand. This invention would lead to others. Primitive man's next great advance was the use of clothes and the taming of fire. These cultural advances enabled him to migrate to new areas and not be hampered by the fear of the cold.

Civilization did not progress without crises in the lives of primitive man. Perhaps such a crisis was the advent of the ice ages in Europe. Man had enjoyed a warm climate between the third and fourth glaciations. This may be presumed to have lasted many thousands of years. No one of any generation would sense the change coming on, but eventually ice covered all Northern Europe. The earlier population was replaced by a modern type of man, possibly through conquest. There were other catastrophes, changes in climate, attacks by strange tribes from over the hill, and depletion of game. Man has existed through the centuries surviving one crisis after another. He has not done too well to eliminate causes for such crises and seems unable to progress continuously, but must climb upward, enter periods of retrogression, recover, and begin the long effort again. Each such lapse means the loss of much of his gain over long previous periods.

An editorial in the *New England Journal of Medicine* (1951) thus describes his slow progress.

> "In this, one of the darkest periods in the slow agony of man's efforts to fit himself to his environment, one may well wonder if his apparent progress is only that of Sisyphus, laboring eternally with his stone toward the unattainable summit of the hill. Man still must learn that true progress is not made through scientific achievement alone, or the acquisition of knowledge, but through the wise application of their resources. . . . Salvation, for the present race of mankind, if it is to come, will come not through the development of superior qualities, but through the proper use of the talents that man now possesses."

George E. Sokolsky well describes our present difficulty and one phase of its effect on us. Militarism in the United States is now afoot and brings many changes. For the first time in our history, we publicly acknowledge an objective enemy in time of peace; and we set our prolonged preparation to meet him where and whenever he may attack us or those whom we recognize as allies. All during our history we have endeavored, up to now, to avoid militarism and all its manifestations, namely: (1) an economy based on permanent preparation for war; (2) universal military service altering the education and family status of our youth; (3) subordination of domestic progress to international necessities.

There will follow new alliances with both former friends and foes. The alternations in American life are vast and their consequences are not predictable. Certainly, the two general wars since 1900 have not been good. We must not develop a landless proletariat dependent upon a pay check and a government guaranteed security. Continuing this trend will result in leveling off the middle class, many of whom will sink into a protective system of taxation and high prices. In the past, we thought civilization could go on to greater heights and that man would improve himself and his way of life. We felt thus in spite of the fact that philosophers and historians accepted the fact that civilizations die. The old civilizations proved mortal. Must our nation go through the same process of birth, growth, maturity and death? Popular opinion only recently has begun to see this possibility. Many of the old civilizations lasted hundreds of years only to fall to a more vigorous but often inferior type of culture.

United States bombs could destroy the Soviet Union, states Dr. Vannevar Bush, one of the co-developers of the atomic bomb. He says this country without question could destroy Russia if she started a war in Europe. We could destroy not only the key centers from which her armies would be supplied, but also political centers and the communications of her armies on the march. Let us remember that Russia now has the atom bomb and the means to deliver it. Most observers feel that the United States could not stop all attacking planes but that some would get through.

Civilization today faces two alternatives. We are at a crossroad. A wrong turn will mean atomic bombs and more Hiroshimas with human life the cheapest thing on earth and the most expendable. A right turn would lead to new heights of human endeavor—with new purpose and meaning. War today with a powerful nation, possessing the atom bomb and means to deliver it at a distance, would endanger civilization as we know it. The larger cities, the centers of civilization in both countries at war, could be destroyed and with them many scientists of both countries, or of the world if the war again became worldwide.

Bertrand Russell in the *Atlantic* (March, 1951), lists three possibilities for civilized man before the end of this century:

1. The end of human life and perhaps all life on this planet.
2. A reversion to barbarism after a catastrophic diminution of the population of the globe.
3. Unification of the world under a single government, possessing a monopoly of all the major weapons of war.

If the next war is indecisive, a period of feverish technical development may be expected to follow its conclusion. With more powerful atomic bombs let loose, it is thought by many men of science that civilization as we know it might be destroyed and living be reduced to a village economy, even to barbarism. A sane answer would be the establishment of a world alliance of the great nations of the world which would agree on means to combat aggression. Of a certainty, such a plan would have to be backed by force. If nothing is done, let us not feel that wars will not occur again and again as long as man will settle disputes by this means. There are too many people today with a near schizoid type of mind who cannot be realists when the present crisis is discussed. The loss of population, property, even means of producing enough food which will follow if the new technical forces of war are let loose will be incalculable. If we add germ warfare to the picture above, it might be possible to experience a return to actual barbarism. This might mean a period of centuries before man could rebuild a civilized life up to one such as ours today.

If we are to experience a recurrence of war every generation, the world may eventually prefer a police state rather than the constant curse of war. Toynbee feels that three things are necessary if civilization is to be saved: (1) in politics, the establishment of a constitutional co-operative system of world government; (2) in economics, the finding of working compromises between free enterprise and socialism; (3) in religion, an effort should be made to put secular superstructures back on religious foundations.

Let us not think too lightly of the danger of dropping back to a lower type of civilization. Many writers have voiced their fears of a new series of Dark Ages if wars continue to take all the creative effort of our present civilization all over the world. Others say we are already in such dark ages. Let us remember that even after the fall of Rome, no one man then living had the faintest idea that the world was in a period of retrogression. Out of Asia came Attila and his Huns ready to conquer Western Europe, and he went on until he reached Chalons in France before he was defeated. In the thirteenth century there came out of Asia Genghis Kahn with his Mongols who conquered the entire territory from Eastern Europe to the Pacific and threatened the civilization of Europe. Genghis Khan was not defeated. The next crisis was that of the invasion of Europe by the Turks and their conquest of the Near East to the gates of Vienna. In each of these invasions Western Civilization could have been entirely lost. Thus man and his civilization has progressed, and through the centuries he has survived one crisis after another.

If one or more nations begin a total war they can destroy their adversaries but they themselves may be destroyed in the process. Of the twenty or more civilizations which have existed in the last five or six thousand years, most have died as a result of war or class struggle or combinations of both. Fortunately, such downfalls have been local, and new civilizations have arisen to supplant the old. When one society collapsed in one area, the world was not dragged down with it.

The question arises as to whether history will again repeat itself. The conclusion seems to be that human history does run in cycles. Toynbee feels that this repetition is due to variations in creative faculty. He states that up to now history has repeated itself about twenty times in producing human societies similar to our own Western society, which however, are now either dead or moribund. We then ask ourselves whether this pattern of decline and fall are in store for Western civilization. Ours is the responsibility to give history a new turn.

Our present civilization has its origin in the Eastern Mediterranean countries: Egypt, Palestine, and Greece. Palestine was the birthplace of our religion. Our Northern ancestors adopted this civilization rather late. Perhaps man should be considered not as outmoded, but immature.

We are still close to our primitive ancestors, and in time of stress there is the danger that we may again revert to savagery, as witness what happened in World War II when the cloak of civilization was thrown aside. There is something frightening when the mere veneer of civilization is removed and man stands forth like a thing of evil as he proved to be in Buchenwald and elsewhere. The prehuman beast could not equal it. War itself is a resort to brute force for the settlement of differences.

The question arises as to what we, as members of the medical profession, can do at the State level to further the present national effort. In the first place, we should aid in every way possible in the civil defense program and in the present war effort. Today it is not enough just to be a good doctor. A doctor must also be an alert citizen ready to take part in any constructive work for better government. Ours is a well-educated profession and we should therefore assume more of the responsibilities of citzenship as well as accepting its advantages. There are members who should consider accepting public office if offered them and otherwise carry part of the burden of present-day civilization. Dr. A. J. Chesley, Executive Officer of the Minnesota Department of Health, urges the development of local health services as one of the best means of meeting the present emergency. Such services, he says, are needed to care for civilians in case of enemy attack. This should include care of wounded and sick civilians, protection of civilians against injuries by various types of attack, maintenance of sanitation, provision of medical supplies, organization of emergency hospitals and mobilization of professional health personnel and trained helpers.

Civil Defense in Minnesota is a state-wide problem as part of the nation-wide effort. The citizen who lives in a world of unreality is possibly due for a rude awakening if an actual outbreak of war occurs. This shock treatment may be in the form of an atom bomb explosion or other new and terrible weapon of warfare. While there is no sure way of escaping the effects of an atom bomb explosion, much can be done to reduce the danger of wholesale slaughter. Dr. John T. Smiley, Minnesota Department of Health, cautions members of the profession and other citizens that the civilian population will also suffer if bombing of factories, railroads, or other activities ensues, the injuries to the population being incidental to such attacks. Minnesota citizens may feel assured that the medical profession will contribute all in its power to make civilian defense preparations.

The American Red Cross may feel certain of the backing of the physicians of the state in its National Blood Program, Emergency Relief and services to the three and a half million now serving in the armed forces. The Red Cross, though not limited to our country, is one of the several organizations devoted to the benefit of our fellow citizens and voluntarily supported in a way characteristically American.

Some Americans have been too ready to criticize America and our way of life. A visit of

(Continued on Page 667)

ACUTE ABDOMINAL CONDITIONS

Pathological Aspects

PAUL W. SCHAFER, M.D.
Professor of Surgery, University of Kansas School of Medicine
Kansas City, Kansas

WHEN Dr. Stillwell extended to me the invitation of the Minnesota Society of Clinical Pathologists to give the 1951 Arthur Hawley Sanford Lecture, my uncommon pleasure was much that of a student afforded an opportunity to honor his preceptor, for, like most of you, many have been my lessons learned from Dr. Sanford's writings. It is my hope that this modest presentation will justify, in part at least, what certainly must have been a marginal calculation by your committee in asking one so young and relatively inexperienced to deal with such a topic as pathology aspects of acute abdominal conditions. In few areas are our diagnostic tests less precise, and I doubt if in any area are they less a substitute for that insight which comes only with long years of experience.

Here, to a degree encountered almost nowhere in the practice of medicine, the carefully elicited history becomes a prerequisite for consistency in accurate diagnosis. And *diagnosis,* not treatment or prognosis, is usually our problem. Needless to say, this history must be imaginatively and intelligently interpreted in relation to demonstrable physical and laboratory signs. But all goes for naught unless the physician constantly makes that sharp clinicopathologic correlation which represents the keystone of medicine, be it the medicine of daily practice or that of the investigator in his laboratory. Just as our clinicopathologic conferences are the best attended hours in the medical school curriculum, so does the complete physician become increasingly conscious of his need for more and more information concerning the nature of the diseases he must encounter.

By way of illustration I should like to relate a recent experience we had with a fifty-year-old man, who, three days before admission to the Medical Center, without warning, had experienced massive gastrointestinal tract hemorrhage, the blood being passed as tarry stools. Treatment was instituted with a presumptive diagnosis of bleeding from a gastric or duodenal ulcer. Barium studies made two days later, admittedly under less than ideal circumstances, were interpreted as showing a large crater high on the posterior aspect of the lesser curvature of the stomach. He was referred to the hospital for radical esophagogastrectomy, since it was felt that he most probably had an ulcerating carcinoma of his stomach. The service resident, intern, and extern each obtained a separate history of the patient's illness, and each accepted the stated diagnosis. However on repeat barium studies the stomach and duodenum were found to be normal. Colon studies, however, revealed a classic picture of sigmoid diverticulitis. The patient's comments were of interest, since he volunteered without coaching that he could not believe that he had bled from his stomach, since he had observed that he had been slightly constipated at the time of his hemorrhage and after passing his voluminous tarry stools he had then passed several well formed stools that were free of blood, and he could not understand how blood could have got past his fecal material without changing its appearance. This was learned after four histories had been elicited from him. It has been of interest to us, particularly since most writings on the subject present a contrary view, that major hemorrhage not uncommonly complicates sigmoid diverticulitis. Indeed, we have carried out several elective resections because of recurrent hemorrhage in patients seemingly on adequate conservative management.

The time allotted for this presentation would permit only the most brief sort of comment if one were to undertake merely an enumeration of all of the disease states which may present as acute abdominal problems. Furthermore, I am sure you know as well as I the oft-repeated axioms which concern the common offenders. Therefore I should like to limit my remarks to those few situations in which we have had unusual experi-

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Arthur H. Sanford Lectureship in Pathology.

Presented in Symposium on Acute Abdominal Conditions at the annual meeting of the Minnesota State Medical Association, Rochester, Minnesota, May 1, 1951.

ence or interest, in the hope that you may find similar interest and perhaps value in them.

First, concerning some affections of the biliary system. An oft-forgotten consideration in acute cholecystitis is the substantial evidence which strongly suggests that chemical factors are of major significance in determining the course, if not the onset, of this condition. Not infrequently cultures carefully prepared from exudates, gall-bladder wall, and gall-bladder bile are found to be sterile. No wonder antibiotics occasionally seem ineffectual. Too, this inflammation is characterized by the outpouring into the tissues of an inordinate amount of sero-fibrinous exudate with an excessive number of eosinophils. Further, complete resolution is almost unheard of, the process usually resulting in the deposition of much fibrous tissue. This fibrinous and later fibrous localization at once sets acute and recurrent cholecystitis apart from most intra-abdominal inflammations. Certainly it must be one factor to be given serious consideration by those who would advocate immediate resection for acute cholecystitis. I, for one, am not unhappy with the results we obtain by conservative management, followed later by elective resection.

Another problem in this area poses a rare test of one's judgment. It is the matter of correctly evaluating that desperately ill patient who presents with acute upper abdominal signs, wildly swinging fever, and rapidly increasing jaundice. Little imagination is required for one to suspect the presence of hepatitis and cholangitis. The poser is whether these liver changes should be referred to stone obstruction of the common duct. Here a wrong decision more often than not costs the patient his life. Exploration of a patient without stones carries a prohibitive morbidity and mortality rate, while unrelieved stone obstruction, under these conditions, offers an equally grim prognosis. Here again the history is of inestimable value. Last fall, a forty-two-year-old woman was studied in our out-patient department. She told of recurrent attacks of severe right upper quadrant pain, and was demonstrated to have non-visualization of her gall bladder after intravenous dye. A diagnosis of recurrent cholecystitis and cholelithiasis was made, and the patient was advised to have cholecystectomy. A period of procrastination followed, and she was next seen in our emergency unit, complaining of severe upper abdominal pain. She presented tenderness and rigidity, fever, and intense jaundice. She was thought almost surely to have developed stone obstruction of her common duct. Indeed, at this time she pleaded for surgical intervention, and was almost accommodated. Fortunately, a significant history was pieced together from slightly guilty admissions by both the patient and her sister that they had regularly been taking vitamin shots from a certain non-medical practitioner addicted to many ill-advised practices, including the use of unsterilized needles and syringes. Further, he had been suspected in other cases of infectious hepatitis. Our problem by then had become indeed complicated. We elected to delay intervention until a profile of liver function could be established, and, fortunate for the patient, this suggested no sign of obstruction. Her course during forty days of hospitalization was such that I feel sure she could not have tolerated surgical exploration.

Liver function tests are beyond the scope of this presentation. However, I should like to emphasize two points in connection with this specific problem. Much is yet to be learned concerning the phosphatases. However, there is creditable evidence to suggest that serum alkaline phosphatase is largely excreted in the bile, and that this process goes on largely uninfluenced by the integrity of the liver parenchyma. Thus, a marked elevation of serum alkaline phosphatase should strongly suggest duct obstruction, and in our experience this has been a reliable observation. Similarly, under proper conditions, prothrombin determinations may be of great value. We have yet to observe absence of obstruction in a hypoprothrombinemic patient who has presented normal prothrombin levels twenty-four hours after the parenteral administration of vitamin K. One further observation concerning common duct stones: We are all of course aware that only rarely will an obstructing stone contain sufficient calcium to be recognizable on a plain x-ray film of the abdomen. The reason for this odd situation is that calcium is precipitated from the bile only within the lumen of an obstructed and inflamed gall bladder. The ampulla and cystic duct of such a bladder are likely to be narrowed sufficiently in caliber to prevent exit of all but very small stones into the common duct, and they are prone to pass on into the bowel without causing obstruction. This observation can be a source of embarrassment, since the presence of a radiopaque stone in the common duct of a patient who previously has had a cholecystectomy clearly indicates that the stone was overlooked at the time of operation.

Much still needs to be learned concerning the etiology and basic nature of pancreatitis. What significance should be attached to bile regurgitation, ischemia, hemorrhage, and even more obscure factors? Though these larger questions remain unanswered, certain tentative conclusions seem possible. There is now general acceptance that pancreatic enzymes are early extravasated into the tissues, and are absorbed by the blood. Further, marked elevation of serum amylase and lipase, fleeting though it may be, when present, should not often be discounted in its diagnostic significance. Highly suggestive evidence is now appearing to indicate that the course of pancreatitis can be favorably modified if acinar cell activity can be suppressed, and this fortunately seems to be in part a vagal function. These observations are important in several respects. First, it is clearly apparent that a patient, desperately ill of acute pancreatitis, is the poorest sort of risk for any operative procedure. Thus exploration for differential diagnosis should be avoided if at all possible. Secondly, and in part for the same reason, definitive surgical treatment has not yielded spectacularly good results. Thus a form of nonoperative management is much to be desired. Perhaps here is an excellent application for the newer vagus-inhibiting drugs. Their use, as well as that of vagotomy, has clearly been of value in relieving the distressing symptoms associated with chronic sclerosing pancreatitis. Clinically, one of the most vicious manifestations of acute hemorrhagic pancreatitis is the patient's persistent anorexia, nausea and vomiting, which requires the most heroic plan for parenteral hydration, alimentation, and medication, if the patient is to survive. The basis for this has never been clearly established. We suspect that the trapped blood may actually cause a mechanical obstruction of the bowel at its fixation near the ligament of Treitz, as is demonstrated in this autopsy specimen of a woman who presented this problem in its most severe form. Similar mechanical factors may further complicate the situation by obstructing the superior mesenteric vein in its course through this same area. So far, without consistent success, we have attempted positive correlation of chronic changes in this area with regional enteritis. On the basis of our experience one certainly should not be surprised to find sclerosing pancreatitis on exploration of a patient with regional enteritis.

Though the pathologic physiology leading to perforation of gastric and duodenal ulcers merits continuing study, the morbid pathology and clinical management of this condition seem well defined. Two uncommon aspects of this problem may be of sufficient interest to warrant discussion. Because of the configuration of parts and the tendency of these lesions to present externally a dense zone of fibrosis with marked tendency for adherence, posterior wall ulcers, as they perforate, pose a unique problem. The resulting inflammation, be it phlegmonous or frank abscess, not only remains localized but may also become complicated by the development of troublesome secondary pancreatitis and hepatitis, thus serving to confuse the clinical picture. Also, anterior duodenal perforations do not always present the acute fulminating clinical picture for which we all have such great respect. We have observed two patients with large defects in the anterior duodenal wall with free flooding of the peritoneal cavity by bile, pancreatic juice, and other intestinal contents. For many months each patient was ambulatory, free of fever, and in no respect acutely ill. What factors make for such tolerance, I do not know.

I have no new thoughts to add to the subject of massive hemorrhage from gastric and duodenal ulcers. Here again, the mechanical basis for the complication can certainly be defined. In the sclerotic bed of a chronic benign ulcer most larger vessels are firmly thrombosed long before they are reached by the advancing zone of necrosis in the ulcer floor. Unfortunately if such is not the case, then massive hemorrhage will occur as the wall of the patent vessel is breached. Furthermore, the entrapped vessel is limited in its reactive constriction by inelasticity of the adherent fibrous tissue, and spontaneous thrombosis is usually delayed until the blood volume and blood pressure have been markedly reduced by the hemorrhage. The situation is in some respects similar to bleeding such as is observed in wounds of cancellous bone.

Critical study of the many available statistical reports which deal with the problem of acute intestinal obstruction will convince even the hard-shelled skeptic of two things. First, never omit a careful examination for strangulated external hernia; and, secondly, do not minimize the implication of a scar from prior abdominal surgery. Adhesion obstruction of the bowel can present in strange ways. I can recall vividly the case of an elderly lady, the wife of a doctor, and dearly beloved by all who attended her. She presented a classical history of an obstructing carcinoma of the sigmoid colon. The barium profile of her defect was certainly compatible with this diagnosis. Unfortunately, the lesion was inaccessible at sigmoidoscopy. The heartache attending the almost certain diagnosis of bowel cancer was quickly replaced by joyous relief when, at operation, a complex band obstruction was found and relieved. She carried the scar of an appendectomy done thirty years before.

For clear understanding of the clinical aspects of bowel obstruction, regardless of its cause, one must constantly recall the effects of location. The slowly developing distention and many days' delay in onset of fecal vomiting of low intestinal obstruction is in sharp contrast to the sudden onset of oft-repeated vomiting of gastric juice and bile, seen in high small intestinal obstruction. Recall too that the very first loop of jejunum, being mobile, may be trapped by a pelvic adhesion, and the patient may die of dehydration and acid-base imbalance without ever presenting bowel distention. Lastly, the fullblown picture of shock in intestinal obstruction is easily recognized as the patient is allowed to go into a state of local loss of plasma and blood into the bowel lumen and into the peritoneal cavity. Obviously, intervention should not be this long delayed. Worth remembering is that shock, in this condition as in others, is correctly referable to a loss in effective circulating blood volume, and that one of man's earliest compensations for this defect is reflex increase in heart rate. Regardless of other signs, though preferably they should be compatible, a progressively rising pulse rate in the obstructed patient should be considered an indication that intervention dare not longer be delayed. Here is a segment of bowel resected from a man whose cardiovascular function was recognizably abnormal only in that his pulse rate during a two-hour period of observation progressively rose from 80 to 110.

I do not intend to discuss acute appendicitis before a group such as this though obviously it must be given paramount consideration in any clinical concern with the problem at hand. All of us would profit by constant self-discipline on one aspect of our daily dealings with acute appendicitis. First, we must recall that it in itself may be merely a symptom of an underlying carcinoma of the cecum, and that its classical clinical picture may be mimicked by other diseases. By way of illlustration, here is the resected cecal carcinoma which four months previously was overlooked as this medical student's father underwent drainage of an appendiceal abscess. And here is the surgical specimen obtained from a twenty-three-year-old man who presented the typical clinical picture of acute appendicitis. You see what appears to be an otherwise normal appendix perforated at its tip. What actually happened was that the patient had gangrenous perforation of a solitary cecal diverticulum, precipitated in all probability by this fecalith. Here it may be seen that the appendiceal involvement was entirely secondary. Far beyond the scope of this presentation are the many conditions which may simulate acute appendicitis, or no less important, the many diseases with which acute inflammation of the ubiquitous appendix may be confused. Suffice it to say that its commonplace occurrence, the excellent results which follow its removal, and the serious complications which ever await temporization, certainly justify our present aggressive attitude. If this be coupled with clear thinking and precise evaluation of the unfolding operative field, I do not much fear the unlikelihood of an eventual good result. But woe to him who regards with condescension this oft-times complex though apparently simple problem.

Much grief also will befall the physician who disregards the retroperitoneal and extra-abdominal conditions which, by reference of signs and symptoms to the abdomen, in many if not every regard, simulate the acute abdominal diseases. Particularly vicious are pneumonia in the young child, coronary occlusion in the man of advanced years, and urinary tract disease at any age.

Disease of the great vessels of the abdomen may result in unmanageable complications. With progressive suppurative thrombophlebitis of the mesenteric veins, be it due to appendicitis, diverticulitis, or other causes, one may encounter such widespread suppuration and necrosis as to almost defy autopsy reconstruction of the course of events, the patient presenting suppurative thrombophlebitis of the portal and mesenteric veins, multiple liver abscesses, retroperitoneal and intraperitoneal abscesses, and extensive bowel congestion and necrosis. Occasionally with more limited involvement, adequate antibiotic therapy combined with bowel resection and drainage of abscesses may make possible salvage of the patient. Almost equally morbid are the major arterial occlusions. Fortunately the inferior mesenteric artery usually has sufficient collateral communication so that its sudden obstruction is well tolerated. This is not so with the superior mesenteric artery. Whether it becomes obstructed due to local thrombosis about arteriosclerotic plaques or due to lodgement of an embolus from the fibrillating heart, gangrene of a variable extent of the bowel is almost certain to follow.

We have had more than ordinary interest in the splenic vein since some time ago it appeared that radical resection of pancreatic carcinoma should logically include, among other structures, the portal vein. Superior mesenteric vein continuity could be restored by anastomosis to the cava. However, we did not know precisely what should be done with the end of the splenic vein. Dogs will not tolerate its ligation, and most evidence suggests that man is no different in this respect. We have now twice had an experience that suggests this may not be true. Here is a gross section of a surgical specimen showing pancreatic carcinoma invading the common bile duct and the portal vein. At operation the splenic vein was simply ligated and at no time did this seem to have a deleterious effect. The patient died twelve days later of pneumonia, and at autopsy one could not detect adverse changes as the result of splenic vein ligation.

I would appreciate your indulgence in allowing me to conclude this presentation with a few remarks concerning a rather uncommon, but hopeless, abdominal catastrophe, for which we think we may be nearing a solution. I refer to aneurysm of the aorta with its propensity for rupture, resulting either in exsanguination or dissection. During the past year we have corroborated the observation made here in your university, by Varco and associates, that adequate pressures and minute volume flow can be maintained via a temporary arterial collateral circulation through polythene tubes placed around a long segment of aorta which may then be deliberately obstructed for as long as one desires. These observations, coupled with the successful use of homologous aortic grafts in man, prompted us to attempt resection of this large arteriosclerotic aneurysm of the abdominal aorta of a fifty-three-year-old man whose life had become unbearable due to intractable back pain. Though we did not salvage this patient, our results suggest that others may be successfully treated by this, or similar methods. Here you see the shunts in place, and next, the appearance of the field after resection of the aneurysm. A large homologous graft, obtained from a traffic casualty twelve days before and preserved by freezing during that interval, was then sutured into the defect. The occluding clamps were released and the shunts removed. That the aorta was not obstructed by the laminated clot of the aneurysm can be clearly seen in this axial view of the resected specimen. The operation was carried out under continuous spinal anesthesia and lasted six hours. The aorta and common iliac arteries were cross clamped for one and one-half hours. The patient made an uneventful recovery and at no time showed signs of disturbance of bladder or rectal function, and had no sensory or motor loss. He had good dorsalis pedis pulses. He was completely ambulatory at two weeks and was to go home upon his twenty-ninth postoperative day when he ruptured his aortic wall through an arteriosclerotic plaque up above the proximal suture line. He died within forty-eight hours. Autopsy findings suggested that we needed only to have been more radical in our resection.

Tuberculosis has long been considered in that class of diseases not exhibiting to any extent epidemic waves, but having, instead, a high endemic incidence. However, in communities where the incidence now has dropped to relatively low levels, we are becoming more and more aware of explosive outbreaks of tuberculosis. The previous, relatively constant level of endemicity we now realize was merely the closely grouped climaxes of myriads of epidemics producing the illusion of a smooth curve. It is the difference between being unable to see clear-cut patterns of waves in a pool of water when one peppers the surface with dozens of pebbles, and seeing only one clear pattern after dropping one pebble on a mirror-like surface.—Tomorrow's Horizon in Public Health, James E. Perkins, M.D., *Tr. 1950 Conf. Pub. Health A.* New York City.

ACUTE ABDOMINAL CONDITIONS

Roentgen Diagnosis

LEO G. RIGLER, M.D.
Minneapolis, Minnesota

THE importance of the roentgen diagnosis in the examination of the chronic diseases of the abdomen, such as ulcer, carcinoma of the gastrointestinal tract, or nephrolithiasis and other diseases of the urinary tract, is widely accepted and, in most larger communities at least, thoroughly in practice. Whenever possible, patients suspected of having such types of abnormality are submitted to competent roentgen examination.

In the case of the more acute abdominal conditions, those which may be designated as abdominal catastrophies, often requiring emergency surgery or immediate treatment, no such unanimity of practice obtains. Even today roentgen rays are used too infrequently under these circumstances. In large part this is due to the difficulties attending the examination of such acutely ill patients, and to a lack of appreciation on the part of the physician as to the value of such an examination.

It is at once obvious that adequate x-ray examinations cannot be obtained when the patient is first seen in the home, but at the present time almost all such patients are transferred to a hospital immediately, where adequate equipment for the purpose of making such an examination is usually available.

The data which will be presented here represent, in general, a summary and review of some of our own experience and that of many of the members of the surgical staff of the University Hospitals, and some review of the literature.

Roentgenologic Technique

The procedure of the examination is not especially difficult, and the disturbance to the patient is not of any great moment, particularly in proportion to the amount of information obtained. A simple anteroposterior film of the abdomen is made with the patient supine. This can be done at the bedside, although films made with the aid of a Potter-Bucky diaphragm are more desirable. The common procedure is to send the patient to the x-ray department directly from the admitting room on his way to the ward or to the operating room. This is somewhat saving to the patient and expedites the matter. However, in follow-up films, after operation, or after the patient is put under therapy, bedside films can be obtained. A roentgenogram of the chest should always be obtained at this time, as it is of vital importance to rule out a lesion of the lung, such as pneumonia. This is of particular significance in acute appendicitis, especially in children. Such films of the chest may well be made with the patient supine. A film of the abdomen with the patient upright also should be obtained if possible. If this is impossible, the patient may be placed on one side or the other and a posteroanterior exposure made, that is, the position of lateral decubitus utilized. Preferably the patient should be on the left side with the right side up but in certain instances this may be reversed. The lateral decubitus position is valuable as a supplementary film even if upright views are obtainable. In certain cases lateral views are valuable. Likewise a lateral view with the patient supine may be used.

The introduction of contrast substances in acute cases is usually to be avoided, particularly the introduction of barium by mouth. There is the danger of increasing the degree of obstruction, making it more difficult to handle if an obstruction is present. There is also the danger of extravasation of barium into the peritoneal cavity through a perforation if one should happen to be present, which militates against recovery from peritonitis. Barium sulphate given by enema is much less hazardous, and in cases wherein the diagnosis of large bowel obstruction is in doubt, the enema examination should be done. Caution must be exercised not to overdistend the colon nor to force the barium mixture above the point of obstruction. In suspected ruptures of the urinary tract, intravenous injection of diodrast, or neo-iopax, is usually considered harmless, even though some extravasation of the material may occur into the retroperitoneal tissues from a rupture of the kidney pelvis or ureter. Likewise the introduction of

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From the Department of Radiology and Physical Medicine, University of Minnesota Medical School, Minneapolis 14, Minnesota.

gas, preferably carbon dioxide, into the bladder through a catheter is probably without danger and may prove of considerable value in demonstrating the presence of a perforated bladder. Other contrast substances may also be introduced into the bladder for this purpose, but again the danger of their extension into the peritoneal cavity should not be overlooked.

Those abnormal states considered in the category of acute abdominal conditions, which are amenable to roentegn diagnosis, are listed in Table I. It should be noted that these include almost all of the acute lesions which may occur in the abdomen.

TABLE I

1. Acute obstruction of small intestine, partial or complete
    (a) Simple obstructions
    (b) Strangulation of obstructions
    (c) Special types of obstruction
        (1) Acute intussusception
        (2) Gallstone obstruction
        (3) Spastic ileus
2. Acute obstruction of colon, partial or complete
    (a) General types
    (b) Volvulus of sigmoid
    (c) Spastic ileus
3. Acute appendicitis
    (a) Without peritonitis
    (b) With local peritonitis
4. General peritonitis
5. Intraperitoneal abscess
6. Perforation of hollow viscus
    (a) From disease
    (b) From trauma
7. Acute pancreatitis
8. Mesenteric thrombosis
9. Subphrenic abscess
10. Perinephric abscess
11. Rupture of liver or spleen
12. Rupture of urinary tract

In any discussion of the value of x-ray examination in the acute abdominal states, it cannot be emphasized too strongly that the roentgen findings must be weighed with the clinical data in arriving at a diagnosis. But the roentgen examination permits not only a more accurate diagnosis, it also gives information as to the nature of the process going on within the concealment of the abdominal wall. Wangensteen has expressed well the information desired by the clinician from the x-ray examination:

1. Information to confirm a diagnosis already tentatively made on the basis of history and physical examination.

2. Information to exclude certain diagnostic possibilities.

3. Information which may lead to the consideration of a diagnosis not previously thought of.

4. Information as to the details of pathological anatomy present.

Two more statements may be added to these:

5. Specific x-ray findings indicating a specific diagnosis regardless of history or physical findings.

6. Information concerning the progress of therapy.

Roentgenologic Signs

In the roentgen diagnosis of acute abdominal conditions certain signs are characteristic. The various findings are listed in Table II.

TABLE II

1. Visible gas in the gastrointestinal tract.
2. Distention of the small intestine, generalized.
3. Distention of the small intestine, localized.
4. Distention of the colon.
5. Distention of the gastrointestinal tract, generalized.
6. Fluid levels in the bowel.
7. Obliteration of the peritoneal or visceral fat markings.
8. Free fluid in the peritoneal cavity—hydroperitoneum.
9. Free gas in the peritoneal cavity—pneumoperitoneum.
10. Hydropneumoperitoneum.
11. Localized collections of gas in the abdomen.
12. Localized collections of fluid in the abdomen.
13. Localized collections of gas and fluid in the abdomen.
14. Displacement of abdominal viscera.
15. Displacement of the diaphragms.
16. Immobilization of the diaphragms.
17. Extravasation of contrast media.
18. Foreign body shadows.
19. Changes in the mucosa of the bowel.

These are described in general below to give some idea as to the basis for the roentgenologic diagnosis. The application of these various signs to any particular type of condition will be discussed later.

Visible Gas in the Gastrointestinal Tract.—Normally gas may be roentgenologically observed in the stomach, occasionally in the first portion of the duodenum, and regularly distributed in the colon. In young children always up to the age of two, and frequently up to the age of six, visible gas may be made out in the small bowel. After birth, gas will appear in the small bowel within a very few minutes and may appear in the rectum within an hour. In young infants, gas will be seen in large quantities in the whole gastrointestinal tract almost constantly. The appearance of gas in the intestinal tract in adults is very common under conditions which are not particularly serious and only moderately abnormal. Usually it signifies stasis, but it may be of transient nature. Thus, during manipulations of various types of examinations, such as cystoscopy, intravenous medication, during periods of severe stress or fright, when afflicted with lesions of the urinary tract, and during periods of serious illness, gas may accumulate in the small bowel to the point of roentgen visibility. It should be noted that in most of these situations the bowel is not distended beyond its normal diameter. There is simply an accumulation of gas which becomes visible; a large number of coils of the intestine are apparent but their diameter remains within normal limits.

The stomach when distended becomes readily visible, and its contours can be easily made out. The same is true of the small intestine and of the colon when gas accumulates within them to any large degree. It is important to make a distinction between the various portions of the gastrointestinal tract. Very little difficulty is experienced in the recognition of the stomach, but the differentiation of the small from the large intestine and of the jejunum from the ileum is not always possible. The large bowel may be identified by its characteristic distribution around the outer periphery of the abdominal cavity, by its size and by its type of segmentation. The duodenum and jejunum are recognized by their location and by the numerous segmentations from the valvulae conniventes.

Distention of the Gastrointestinal Tract.—Distention of portions of the gastrointestinal tract is a much more significant and important sign of abnormality. Marked distention of the small bowel, often to three or four times its normal diameter, usually signifies intestinal obstruction. It may, however, occur as a result of paralytic ileus and even in unusual cases, as a result of obstruction of the large intestine. As stated above, the various segments of the bowel can often be recognized. Distention of the large bowel may be present at the same time, but generalized distention of the gastrointestinal tract is almost always the result of a paralytic ileus.

Distention of the small bowel alone, when it is completely unaccompanied by a corresponding distention of the large bowel, usually is the result of mechanical obstruction. There is a distinct difference in the appearance of the loops of small bowel when affected by a mechanical obstruction than when affected by paralytic ileus. In the former, the bowel has a dynamic appearance. It changes its position from time to time. The segmentations are easily apparent, and the loops tend to arrange themselves in a ladder-like fashion. In the upright position, fluid can be made out within the loops of bowel with gas arising above them; the bowel loops tend to rise into the upper portion of the abdomen.

Demonstration of a very localized distention of only one or two loops of bowel should always arouse the suspicion of strangulation obstruction. This is especially true if large amounts of fluid are seen in the distended coils.

Distention of the colon alone, unaccompanied by corresponding distention of the small bowel and stomach, most commonly occurs with obstruction of the colon. Nevertheless, such distention may occur as the result of spastic ileus and occasionally even of paralytic ileus, so a sharp distinction is not always apparent from the x-ray examination alone. In the patient who has symptoms of obstruction and in whom a considerable distention of the large bowel with no distention of the small bowel is found, the diagnosis of colon obstruction can readily be made.

Fluid Levels in the Bowel.—When stasis occurs, either from ileus or mechanical obstruction, fluid as well as gas may accumulate in the intestine. When the films are made with the patient upright or in the lateral decubitus position, the gas rises and presents a sharp contrast to the denser fluid below, thus forming a fluid level. Such shadows are of importance, as the presence of large amounts of fluid with little gas is suggestive of closed loop obstruction. Occasionally the gas is so small in amount that the distended segments of intestine cannot be seen in the ordinary supine film but become apparent in the upright position. There may be no contrast between a loop of bowel completely filled with fluid and the other intra-abdominal structures. By this means also the position of the coils of intestine can be determined. Fixation of one or two loops in the pelvis or elsewhere can be determined by the presence of fluid levels in that situation. These may remain there regardless of the patient's position. Usually such fixation signifies strangulation or potential strangulation. Multiple fluid levels scattered about often occur with peritonitis or with numerous intraperitoneal adhesions.

In the colon likewise the demonstration of large amounts of fluid in the upright position, in the sigmoid flexure, for example, may signify a closed loop obstruction such as occurs with volvulus.

Obliteration of Peritoneal and Visceral Markings.—The layer of fat overlying the peritoneum makes it possible in many individuals to distinguish sharply between the lateral abdominal wall and the viscera within the abdomen itself, even without the use of pneumoperitoneum. The presence or absence of the peritoneal markings, while strongly emphasized by many writers, is not extremely important and the shadow may well be absent in normal individuals and not infrequently maintains itself even when peritonitis or an abscess is present. The presence of a peritoneal fat shadow does not rule out peritonitis or abscess.

Hydroperitoneum.—In many instances of acute abdominal disease, fluid, either purulent or serous, appears within the peritoneal cavity. This may be the case in long-standing intestinal obstruction, in strangulation intestinal obstruction, at an early stage, in peritonitis from whatever cause, in mesenteric thrombosis, and in cases of intraperitoneal abscess. The demonstration of such fluid can usually be made in the roentgenogram although not as accurately as in the pleural cavity. The presence of fluid becomes manifest by the separation of the loops of small bowel which it produces. Normally the gas-filled bowel can be readily made out, and between each pair of loops there is a fine white line representing the thickness of the two bowel walls which are in contact. When the segments of bowel are separated by fluid the thickness of this white stripe becomes much greater than normal, and at points where three loops of bowel are in contact, the shape of the separation becomes that of a triangle or a circle rather than of a three-pronged stellate shadow, which is normally the case. It should be pointed out that in simple ascites a similar finding is obtained, but little difficulty need be encountered in this regard, as patients with simple ascites will not have other clinical findings which would lead one to suspect that they have peritonitis.

Pneumoperitoneum.—The presence of free gas in the peritoneal cavity is clearly abnormal, and it is an extremely important sign of many acute conditions. Pneumoperitoneum is best demonstrated by putting the patient in the upright position, whereupon the gas will find its way between the diaphragm and the subdiaphragmatic structures. The gas becomes clearly apparent in contrast with the density of the diaphragm and liver on the one side and the spleen, stomach, and other structures on the opposite side. Films made with the patient in the left lateral decubitus will also demonstrate gas effectively. It will then accumulate beneath the right lateral abdominal wall, separating it clearly from the underlying dense shadow the liver.

When large amounts of gas are present, the diagnosis can be made even with the patient in the supine position. In these circumstances, the outer as well as the inner margin of the stomach or bowel becomes clearly visible as a result of the accumulation of gas both around the viscus and within it. This produces a very striking and characteristic appearance, the actual thickness of the wall of the viscus being clearly apparent; the picture is quite pathognomonic of pneumoperitoneum.

It must be borne in mind that gas may appear in the peritoneal cavity in a relatively innocent fashion, for example, after an ordinary abdominal operation. Gas may remain within the abdomen for as long as three weeks after laparotomy, so that films in the upright position made for some time afterward will reveal free gas under the diaphragm. The presence of gas-forming bacteria within the peritoneal cavity may produce gas. Aside from these considerations, the presence of free gas in the peritoneal cavity will almost invariably indicate the rupture of one of the portions of the gastrointestinal tract, or it may indicate a rupture of the bladder if there has been an artificial introduction of air into it.

Certain differential diagnostic features must be borne in mind. The hepatic flexure of the colon occasionally becomes interposed between the diaphragm and the liver, and may thus simulate the appearance of the pneumoperitoneum. Careful inspection will reveal the segmentation of this gas in the characteristic fashion of the colon, and repeated examination will show it to change radically, the colon often slipping out from this position.

It should be noted that a subphrenic abscess under either diaphragm will commonly accumulate gas so that a fluid level can be made out. Such gas, however, is clearly seen to be encapsulated rather than to shift about, as is the case with an ordinary pneumoperitoneum.

It has been found that pneumoperitoneum may be observed in about 80 per cent of the cases of perforation of the stomach or first portion of the duodenum. The exact reason why the other 20 per cent do not exhibit this sign is not altogether clear. It is notable that in perforation of the small bowel free gas is not commonly observed. In at least four cases of traumatic perforation of the small bowel, I have been unable to observe any evidence of gas under the diaphragms. In three recent cases, however, free gas was observed. It is significant that in all of these cases an obstructive lesion of the small bowel was present prior to the time of perforation. This had therefore produced large quantities of gas in the small bowel, and when perforation occurred a pneumoperitoneum was readily formed.

In the case of the colon, when perforation occurs, the quantity of gas is so large and it comes into the peritoneal cavity under such pressure that we have been able to observe gas under the diaphragm in every case.

Hydropneumoperitoneum. — The presence of both gas and fluid in the peritoneal cavity can often be determined by films in the upright and lateral decubitus positions, a fluid level of characteristic type thus becoming visible. The gas, of course, will rise to the higher points in the abdomen while the fluid sinks to a flat level below it. The contrasting shadows of the two media make their presence easily apparent. It is only necessary to exclude localized pockets of fluid and gas, such as a subphrenic abscess or an intraperitoneal abscess, to determine that a hydropneumoperitoneum is present. The latter is not infrequently an accompaniment of rupture of a hollow viscus or peritonitis with gas-forming organisms.

Localized Collections of Gas in the Abdomen.— The appearance of gas in abnormal areas of the abdomen clearly outside the gastrointestinal tract but not free so that it rises up under the diaphragm is of great significance. Gas observed in the region of the liver, well above the duodenum and often outlining the biliary ducts in characteristic fashion, is an important sign as it usually means a fistula between the biliary tract and the intestinal tract. The gas may be present in the gall bladder as well as in the ducts and give the characteristic shape of the gall bladder. It must be distinguished sharply from gas in the first and second portions of the duodenum in this region or in the hepatic flexure of the colon, and also from the separation of the tissues by fat, which may occur near the liver and simulate the presence of gas. Usually the distinction is quite apparent, and the demonstration of this gas indicating the presence of a fistula may have great bearing on the diagnosis of gallstone obstruction.

Gas may likewise appear in the various segments of the abdomen in bubblelike form. It is sometimes difficult to be certain whether or not the shadows are outside the intestinal tract, and repeated examination may have to be made to determine their constancy. This is in contrast with gas in the intestinal tract, which is usually very irregular and changes its position and character from time to time. Such bubble-like shadows are often the first indication of the presence of an intraperitoneal abscess. They are commonly seen around the cecum, and likewise in the left lower quadrant, where abscesses tend to form.

Localized Collections of Fluid or Fluid and Gas.—Pockets of fluid which are encapsulated in the abdomen usually denote an abscess. This is represented by a localized area of density in almost any portion of the abdomen. It can be clearly made out because of the gas-filled bowel which often surrounds it and which is often distinctly displaced and compressed by the accumulation of fluid.

When films are made in the upright or lateral decubitus position, the separation of a layer of gas from the fluid in such a pocket may well occur. This will indicate unequivocally that an abscess is present and often means that the abscess has been in communication with a portion of the intestinal tract. The latter does not necessarily follow, however, as some abscesses may have gas-forming organisms within them which produce the gas as well as the fluid. Gas may also be seen around the kidney or retrocecally in the form of stripe-like or bubble-like shadows. This often means either a perinephric or retrocecal abscess. Under suitable conditions it may indicate a rupture of the retroperitoneal portion of the duodenum with escape of gas into this space.

Displacement of Viscera.—The position and contour of the gas-filled gastrointestinal tract may be demonstrated with a fair degree of certainty in most acute abdominal lesions. Localized displacements of various portions of the stomach or bowel may thus be observed; these are usually due to localized abscesses or localized collections of fluid, such as blood or urine. Downward displacement of the stomach, for example, can thus be made out in cases of hematoma from rupture of the spleen. The same is true of the downward displacement of the hepatic flexure of the colon after rupture of the liver. As stated above, localized abscesses will cause local displacement either of the small bowel, if the abscess is interintestinal, or the cecum, if it is pericecal. Under certain circumstances, where an acute abdominal condition is suspected, the demonstration of a mass rising up out of the pelvis, displacing the bowel, may suggest the possibility of a twisted cyst of the ovary or a large pelvic abscess.

Marked separation of the stomach from the colon may be a very significant sign, and is strongly suggestive of a hemorrhagic pancreatitis or an acute cystic enlargement of the pancreas. This finding may well be used in the diagnosis of such acute lesions.

Displacement and Immobilization of the Diaphragms.—Any lesion in the peritoneal cavity which produces increased pressure will tend to cause ascent of the diaphragm. Localized lesions, such as subphrenic abscesses, may cause marked elevation of the diaphragm on one side or the other. Intraperitoneal hemorrhage or other intraperitoneal fluids will produce upward displacement of the diaphragms best observed in the supine or Trendelenberg positions. Partial or complete immobilization of the diaphragm is another manifestation of many intraperitoneal lesions, especially those of an inflammatory nature. This is particularly true of acute pancreatitis but may occur with an upper abdominal lesion. A satisfactory demonstration of immobilization of the diaphragm is best made by fluoroscopy.

Extravasation of Contrast Substances.—The introduction of contrast media, such as barium sulphate, into the gastrointestinal tract, may permit actual observation of the point of perforation of an ulcer or carcinoma by extravasation of the material into the peritoneal cavity. As stated above, this procedure is definitely harmful and should not be undertaken if at all avoidable. There appears to be a distinct increase in the chances of a fatal peritonitis when barium is extravasated into the peritoneal cavity along with other material from the gastrointestinal tract. The introduction of barium in the colon may also result in extravasation of barium into the peritoneal cavity, if a rupture of the colon has previously been present. For example, in a case of acute diverticulitis with rupture, which may simulate obstruction of the large bowel, it is conceivable that a barium enema might do some harm. Generally speaking, it is well to avoid contrast substances when the gastrointestinal tract is under suspicion. On the contrary, in the urinary tract, intravenous urography may be undertaken in cases of suspected rupture without particular fear of harmful effects. The contrast substance may thus be traced from its normal position in the pelvis of the kidney or from the ureter into the perirenal or retroperitoneal tissues, indicating the rupture which is present. Likewise, extravasation of contrast material from the bladder may be noted by the observation of the dense shadow of the medium, such as diodrast, as it extends into the peritoneal cavity or into the pericystic tissues. This can be accomplished more quickly by cystography. The introduction of air into the bladder may produce a pneumoperitoneum and may be observed with the patient in the upright position, providing the bladder has ruptured into the peritoneal space. There is supposedly some risk under such circumstances in that an air embolism may occur. As a result it may be advisable to use carbon dioxide instead of air for such a demonstration.

Foreign Body Shadows.—Shadows of opaque foreign bodies, such as gallstones, bezoars composed of bones, or metallic foreign bodies, may be observed. Their presence together with evidences of obstruction may indicate an obturation obstruction.

Changes in Mucous Membrane of Bowel.—In occasional cases of volvulus, the twisted mucous membrane folds may be made out as positive shadows in contrast with the gas about them.

Roentgen Findings in Specific Conditions

The scope of this paper will not permit a discussion of the specific x-ray findings in all the acute abdominal states listed above. Only a few conditions in which the roentgen examination is of pre-eminent value and in which the findings obtained are practically diagnostic in themselves will be detailed below. Thus the x-ray findings in simple acute appendicitis, simple small bowel obstruction, paralytic ileus, mesenteric thrombosis, and many others are not included.

Strangulation Obstruction.—The simple differentiation of a simple mechanical obstruction from a strangulation is of extreme importance, particularly with relationship to the application of therapy. While in simple mechanical obstruction the application of conservative suction therapy may be the method of choice, such a procedure in the presence of a strangulation, such as might occur from a volvulus, incarcerated hernia, or adhesions, may result in a fatality directly attributable to the neglect of proper procedures. Differentiation clinically may be made in many cases, but in a good many it is extremely difficult.

During the past few years we have observed a number of cases in which certain specific x-ray signs appear to be fairly constant and highly suggestive, if not completely diagnostic, of strangulation obstruction. Under such circumstances there appears to be an ability on the part of the bowel to pass gas into the strangulated portion, which in itself tends to distend without a corresponding distention of the loops of bowel proximal to it. As a result, a rather localized distention of two segments of bowel can be made out. In many cases the gas-filled bowel has taken on a characteristic "coffee bean" appearance, the two loops being separated by a wide band of increased density, probably representing the edematous walls of the bowel with a small amount of fluid between them. There is an unusually large accumulation of fluid within these isolated loops, and they remain relatively fixed, so that in the upright or lateral decubitus position the distended loops of bowel do not shift. In patients in whom suction has been applied, it is significant that the distended loop of bowel remains well filled with gas, being relatively unaffected, although the gas which is present elsewhere may disappear under the influence of the treatment. The demonstration, therefore, of a rather localized distention of two loops of bowel, larger quantities of fluid than usual within them, some evidence of fluid between them, and some fixation would strongly suggest a diagnosis of strangulation obstruction.

Intussusception.—The particular type of small bowel obstruction, which occurs most commonly in children, incident to ileocecal or ileocecocolic or ileoileal intussusception represents another type of intestinal obstruction in which an early specific diagnosis is extremely important, because of the necessity for immediate surgical procedure. In most instances the diagnosis is readily apparent from the history and physical signs. However, in patients coming from a neighborhood wherein some enterocolitis has been present, and in whom the signs are atypical, the diagnosis may remain in grave doubt, and delay in treatment may ensue. Obviously, it is not desirable to operate on a patient with acute enterocolitis, and, as a result, operation is often delayed to a point where a fatal outcome ensues.

The determination of an ileocecal or ileocecocolic obstruction can be made with great accuracy by the roentgen examination with a barium enema. Preliminary films will sometimes, although not always, reveal the characteristic gas accumulation in the small bowel. Barium enema examination can be then done, and a characteristic defect in the colon due to the interposed bowel is made out. The defect is of typical appearance because of the mucous membrane of the bowel, which, being inverted, lies in contact with the barium in the colon which has been filled. This gives a shadow, resembling multiple rings, of lesser density, partly filled with gas and partly surrounded with barium. The intussuscipiens may be encountered as low as the sigmoid colon or anywhere along the course of the large bowel up to the ileocecal valve. During the course of the enema examination, some obturator reduction of the intussusception may occur, but we do not make any strenuous efforts to produce a cure by this means. The demonstration of the passage of barium through the ileocecal valve into the ileum is excellent evidence that the intussusception has been reduced, but the possibility of a compound intussusception, that is, an ileo-ileal intussusception in addition to an ileocecal cannot be excluded by this means. As a diagnostic procedure, however, barium enema examination does no harm and should be done whenever there is any doubt whatever about the diagnosis.

Gallstone Obstruction.—In any obturator obstruction of the small bowel, immediate operation is indicated because of the possibility that a gallstone or other foreign body will erode the intestine and produce a fatal peritonitis if not immediately relieved. Gallstone obstruction occurs, generally speaking, as a result of the passage of a stone, either from the common duct or from the gall bladder into the duodenum. The stone itself finds its way through the intestinal tract until it reaches a point of smaller lumen than it can pass, or until, because of the roughness of the stone, a spastic contracture of the bowel occurs, producing an obstructive spasm, which in turn eventuates in a true obstruction. The diagnosis of gallstone obstruction may well be suspected from a careful analysis of the clinical findings. However, in the majority of cases, until the x-ray signs were described, the diagnosis was missed, because gallstone obstruction tends to be intermittent and very atypical in many of its findings. As a result, the x-ray examination is of first importance.

In such cases there is evidence, as described above, of mechanical obstruction of the small bowel. The obstruction is often not complete, so that gas will be found in the colon. If, in addition to this, local accumulations of gas over the liver or in the region of the gall bladder and ducts are found, the diagnosis can be advanced with considerable certainty. In some cases the stone shadow itself can readily be made out. If a shadow similar to that of a gallstone is seen lying some distance away from its normal situation, and if symptoms and signs of intestinal obstruction are also present, the diagnosis may well be suspected. In a series which Borman and I have reported, both from our own experience and from a study of the literature, it appears that approximately 2 to 5 per cent of all cases of intestinal obstruction are due to gallstones. It should also be noted that the mortality in cases of gallstone obstruction, prior to 1930, was reported as being as high as 90 per cent, largely due to delay in diagnosis.

The mechanism whereby gallstones pass into the intestinal tract was clearly observed in a case observed at autopsy reported by Borman, Noble, and myself. Large stones in the common duct or in the gall bladder may gradually erode through the wall of the structure into the neighboring bowel. The bowel is often adherent to such a gall bladder or common duct, so that erosion occurs without peritonitis or other incident. In one case, a massive stone eroded through the common duct, while the ampulla of Vater itself remained firmly closed. It is possible, however, for stones to pass through the ampulla itself and into the intestinal tract, yet eventually produce obstruction. Under such circumstances, the sphincteric activity of the ampulla is destroyed and a fistulous tract is established through the common duct itself. Otherwise a new tract between the biliary structures and the intestinal tract is established, and the possibility of regurgitation of intestinal contents becomes apparent. The pressure within the duodenum being greater than in the biliary tract, there is a tendency for gas and barium, when given, to regurgitate and thus demonstrate the fistulous communication on roentgen examination. This is seen not too rarely even without gallstone obstruction being present. The stones which pass in such situations are often small enough to be evacuated with the fecal contents. Cholecystocolic fistulas also occur, but these do not produce obstruction.

It should be observed at this point that other types of obturator obstructions of the intestine may occur, but they are relatively rare. I have seen one such case in which the bones of the feet of a chicken became impacted in the small bowel and produced a complete obstruction. Other types of bezoars may occur and produce obstruction likewise.

Acute Obstruction of the Colon.—Acute obstructions of the colon are not infrequent and most commonly are due to carcinoma which has been neglected. The surgical problem in these cases is not that of dealing with the carcinoma but rather of relieving the obstruction, particularly to prevent rupture of the cecum. The latter is probably the most common fatal complication of acute obstruction of the colon. Under such circumstances a barium enema examination, which under more ordinary conditions is a highly effective aid in diagnosing carcinoma of the colon, may not be as useful. It is often extremely difficult for the patient, under the conditions of acute distention, to retain the barium, and marked caution must be exercised in adding the additional pressure of the enema to a colon which is already enormously distended with gas. Nevertheless in some cases, it may be advisable to do so, and if sufficient care is exercised, as pointed out above, to prevent barium from reaching above the point of obstruction and to avoid excessive pressure, no harm will result. A combination of the evidence obtained in this way with that obtained through the careful examination of simple films of the abdomen, will usually reveal that it is the colon and not the small intestine which is primarily involved. Some distention of the small bowel may also be present, but this is a secondary effect.

Characteristically, in a scout film of the abdomen the colon can be made out, by reason of its typical haustral recesses. Depending upon the point of obstruction, the distention of the colon will be of more or greater extent, and usually the gas column can be followed right up to the point of obstruction. In many cases the tumefaction of the obstructive process can be observed. In many cases of acute obstruction of the colon, the obstruction is not complete, and as a result some gas will be seen distal to the point of occlusion. The colon proximal to the closure will be dilated up to the ileocecal valve, the cecum itself usually being much more distended than the remaining portions of the colon.

In a fairly large percentage of cases, as recently pointed out by Dennis, a perceptible accumulation of gas can be made out in the small bowel, even though the obstruction is in the colon. This is particularly true when the obstruction is rather proximal, such as in the ascending colon or cecum. The amounts of gas seen under such circumstances, however, are of insufficient grade to give much difficulty in differentiation, as the small bowel is not especially distended. In about 30 per cent of the cases, however, actual distention of the small bowel was found, but to a lesser degree than that of the colon. Under such circumstances, the differentiation, by means of the x-ray findings alone, from a paralytic ileus becomes exceedingly difficult. In a smaller percentage of cases, approximately 8 per cent, the distention of the small bowel was of greater degree even than the colon. In several instances which I have observed the ileocecal valve was completely deficient, and the intestinal tract became one complete unit. In such situations the symptoms and signs and the roentgen findings may all simulate small bowel obstruction. The presence of fairly large quantities of gas in the colon may indicate that the diagnosis is not that of a small bowel obstruction, and further studies may thus be stimulated. In some such cases the administration of barium by enema may clarify the situation. In one case we gave barium by mouth, and despite the great dilation of the small bowel we failed to find a point of obstruction, the barium passing right on into the cecum. Later a carcinoma of the ascending colon was demonstrated. It should be observed, therefore, that the presence of gas in the small bowel or the demonstration of small bowel distention does not exclude obstruction of the colon.

Volvulus of the Colon.—In volvulus of the sigmoid, the x-ray findings may be of particular importance. This is a type of colonic obstruction in which immediate intervention is necessary. We have observed cases of acute obstruction occurring from volvulus of the sigmoid in patients who had previously been observed on a number of occasions and who had exhibited extremely elongated, redundant sigmoids. This redundant bowel had become twisted, with acute obstruction resulting. In such cases the roentgenogram is likely to show a very marked distention of the sigmoid far out of proportion to the distention of the remainder of the colon. The sigmoid may ride over to the right side, coming to lie up under the liver, or in some cases it extends well up under the left diaphragm as a result of the extreme elongation and distention. Films made in the lateral decubitus or upright position will show an unusual accumulation of fluid within the sigmoid loop itself, and this combination is strongly suggestive of volvulus. In addition, careful study may reveal two points of obstruction in the gas column, which likewise is suggestive of volvulus. In such cases also, barium enema examination is strongly indicated, and the characteristic twisting of the mucous membrane pattern of the bowel can readily be observed; it is pathognomonic of the condition.

Acute volvulus of the cecum is also not rare although less common than in the sigmoid. The cecum becomes enormously enlarged, shows a fluid level in the upright position, and may be displaced. The ileocecal valve may be distinguishable in contrast to the gas about it and the nature of the distended viscus thus established. The twisting of the mucous membrane pattern may be visible even without contrast medium.

In all cases of acute obstruction of the colon which are not treated immediately, repeated examinations should be made so that the size of the cecum may be closely observed. A marked increase in the size of the cecum is always indicative of the possibility of perforation, which is almost always a fatal complication of acute obstruction of the colon. If opportunity is afforded to examine the patient from time to time, this observation may be of great value.

General Peritonitis.—In general peritonitis from any cause, the most common finding is the presence of adynamic ileus. The findings have been described above. As stated above, it should be borne in mind, however, that in many cases of general peritonitis an actual mechanical obstruction from adhesions occurs, and care should be exercised not to overlook it because of the presence of a generalized ileus. In the upright position, in patients with peritonitis, fluid levels can be made out, and not infrequently loops of bowel will be found well down in the pelvis and partially fixed, owing to the diffuse adhesions which may be present. Usually there is gas distention of the colon as well as of the small bowel. Obliteration of the peritoneal markings on both sides is commonly present, although not necessarily so, and the presence of these markings does not exclude a peritonitis. Elevation of both diaphragms is fairly common and there may be some degree of immobilization but not to the same extent as would be found in a subphrenic abscess, for example.

Evidence of fluid within the peritoneal cavity may readily be obtained in cases of general peritonitis. Usually the amount of fluid is not great and is best manifested by the separation of the loops of bowel, as described above. In cases where an abscess is already forming, the fluid may accumulate locally in larger quantities and in that way indicate the tendency toward the formation of an abscess, although a distinctly encapsulated pocket is not clearly made out.

While the presence of fluid and the obliteration of peritoneal markings occur from ascites also, it is obviously not a very difficult problem in differentiation, since most patients with peritonitis have severe, acute symptoms. The distinction between postoperative ileus with a moderate fever and an actual peritonitis is infinitely more trying, and it is in this situation that the x-ray examination may be of very great value.

Intra-abdominal Abscess.—Abscesses within the abdominal cavity may well be divided into three groups—subphrenic, interintestinal, and pelvic abscesses. For purposes of this discussion, subphrenic abscess will not be considered, as it represents a subject almost in itself. The interintestinal and pelvic abscesses occurring commonly from acute appendicitis with rupture, as a secondary phenomenon from ruptures of the intestinal tract, from pelvic inflammatory disease, after operation, or as sequels of any type of general peritonitis, are of great importance. The roentgen examination is very helpful in their delineation. Patients with ruptured appendix, for example, in whom conservative therapy is used, can be observed in this fashion and the development of the abscess itself, as a localized pocket of fluid, can be clearly delineated. I have observed patients in whom a pericecal abscess and, as time went on, an interintestinal abscess in the left upper quadrant both developed, following a perforated appendix in which intervention was not immediately undertaken. In patients who have had a general peritonitis for some period of time and, owing to their condition, it is thought unwise to interfere, repeated x-ray examination at the bedside is of very great value in determining the eventuation of the condition. Likewise, after operation, the development of an abscess either from accidental perforation of the bowel or from other causes can be followed in this way.

An abscess either in the pelvis or in the interintestinal area manifests itself essentially as a local area of density displacing the loops of gas-filled bowel about it. A generalized ileus is usually also present. In some instances the loops of bowel can be clearly made out adherent to the abscess itself and sometimes even overlying it.

A distinction must be made from an ordinary intra-abdominal tumor, and here again the clinical findings usually suffice; furthermore, in an ordinary tumor the generalized bowel distention, commonly accompanying an abscess, is not present.

The development of gas within the abscess may occur as a result of a communication with the gastrointestinal tract or from gas-forming organisms. This may give a very characteristic picture in that the density of the pocket of fluid is greatly diminished in the supine position, and if upright or lateral decubitus films are made the gas can be separated out.

As pointed out above, the observation of small bubble-like shadows of gas in a local portion of the abdomen should always raise the suspicion of an abscess. Such shadows may be the first evidence of abscess formation.

Perforation of a Hollow Viscus.—Roentgen examinations in case a perforated hollow viscus is suspected have been employed for a good many years and are very informative in their delineation. As in some of the other conditions discussed here, a perforated ulcer of the stomach or duodenum is often quite obvious from the clinical standpoint.

In some instances, however, doubt is certainly present, and under these circumstances, x-ray examination, particularly in the upright or lateral decubitus position, is of great value. The demonstration of free gas, as stated above, may be made in approximately 80 per cent of the patients who have had a perforation of the stomach or of the first portion of the duodenum. In cases of perforation of a carcinoma of the stomach the same is true. In the case of perforation of the colon, almost 100 per cent will exhibit gas which is readily observable. As stated above, the evidence of a spontaneous pneumoperitoneum may also be obtained with the patient in the supine position alone. Perforation of the small bowel has a much smaller percentage of accuracy in this regard, probably due to the lack of accumulation of free gas within the small bowel. Not much gas escapes unless an obstruction has been previously present.

In a rare case or two, a traumatic perforation of the retroperitoneal portion of the duodenum might cause the gas to extend retroperitoneally. In that event the gas will not be free and will therefore not appear under the diaphragms but will be seen around the kidney or psoas muscle or in the pericecal region. The clue to the nature of the perforation may thus be obtained.

When peritonitis from a perforation has been present for some period of time or when there has been much extrusion of fluid from the perforated viscus into the peritoneal cavity, both gas and fluid may be observed, if the patient is put into the upright or lateral decubitus position. The findings described under hydropneumoperitoneum are then obtained. In rare cases of gas-forming peritonitis a similar finding may occur.

Summary

Roentgen examination is of the first importance in the conduct of almost all of the acute abdominal emergency conditions. The information obtained from such examinations, when combined with the history, the clinical and laboratory findings, will lead to a more rapid and more exact diagnosis of the nature of the disease process.

Roentgenograms of the abdomen without contrast media should be made in the supine position and, where possible, in the upright and lateral decubitus positions as well. A simple roentgenogram of the chest, in the supine position, should also be obtained.

The various roentgen signs of abnormality are described and the importance of a careful analysis of the roentgen shadows is indicated. The application of the roentgen findings is detailed as regards the following conditions:

1. Strangulation obstruction.
2. Acute intussusception.
3. Gallstone obstruction.
4. Acute obstruction of the colon.
5. Volvulus of the colon.
6. General peritonitis.
7. Intraperitoneal abscess.
8. Perforation of a hollow viscus.

"The day may come when Blue Cross will be too expensive for poor people. When that day comes, there will be compulsory health insurance. Blue Cross protects the patient—the doctor must protect Blue Cross." This quotation comes from Dr. Paul R. Hawley. A news report from Rochester, New York, states that Blue Cross there has had to curtail some services because subscribers, aided and abetted by some doctors, have chiseled themselves into services they were not entitled to. A warning has gone out from our own Blue Cross which hints, to put it mildly, that too many of its funds are being used up for diagnostic procedures.

Recently, a woman said to me, "My husband has paid for Blue Cross for four years and we have never used it. I want a chest x-ray and some blood counts and I think I have it coming after all these years." She was healthy and there was no need for these services. You have probably all at some time or other had similar experiences. We are constantly subjected to undue patient pressure.

And if we succumb to this pressure, as some doctors are doing, we shall surely undermine Blue Cross until it can no longer function. We shall then have killed the goose that laid some of the best anti-compulsory medicine eggs of all.

Blue Cross and Blue Shield are meant for sick people. Let's keep it that way. The doctor who helps his patients to chisel on these plans is guilty of a great disservice to medical and hospital services. Such a physician must have a dull conscience, indeed.—Reuben F. Erickson, M.D., President, Hennepin County Medical Society, *Bulletin HCMS,* June, 1951.

ACUTE ABDOMINAL CONDITIONS

Surgical Aspects

OWEN G. McDONALD, M.D.
Duluth, Minnesota

In this symposium on acute abdominal conditions, I wish to discuss the surgical aspects. I have omitted the commoner conditions and will consider some of the less frequent, but serious situations which make up a part of this complex. The proper management of any acute condition is dependent upon a correct interpretation of the pathological process. First, we must rule out such nonsurgical conditions as coronary disease, diabetes, pulmonary lesions, et cetera. Second, when confronted with a patient who has symptoms of an acute belly, the age-incidence factor should be considered. In the first two years of life, congenital malformations and intussusception are the commonest offenders. After this, and until adulthood, appendicitis, regional enteritis, mesenteric adenitis, and trauma play the leading roles. Thereafter, all the acute processes enter into the picture, until we begin dealing with the geriatric patient, where obstructing lesions, both intraluminal and vascular, and acute cholecystitis head the list. Third, it is helpful if we divide these lesions into four broad pathological groups such as result from:

1. Mechanical blockage, either to a hollow organ or to its vascular supply.
2. Perforation of a hollow viscus.
3. Inflammatory processes.
4. Hemorrhage.

The clinical features of these are quite distinct. For example, obstruction is associated early with colicky pain and vomiting. The higher the site of obstruction, the earlier the onset of vomiting. The physical findings may be minimal. There may be some tenderness but rigidity is not common. Bowel sounds may be hyperactive. On the contrary, however, in inflammatory lesions the pain comes on gradually and is referred to the site of the lesion. Involuntary rigidity is replaced by voluntary splinting. Bowel sounds may be entirely absent. Elevations of temperature, pulse and leukocyte count are present, as in inflammatory processes anywhere in the body.

Acute Cholecystitis

While there is not complete unity of opinion on the management of this condition, the writings of Glenn[1] and others have stimulated interest in the problem, and it is pretty well agreed that if surgery can be performed within the first twenty-four to forty-eight hours, the results are gratifying. However, too often we do not see the patient until more time has elapsed, and it may be wiser to treat him expectantly with adequate fluids, electrolytes, antibiotics, gastric suction, et cetera. With these the acute picture may subside, and elective surgery can be carried out later. However, with an increasing mass and tenderness, accompanied by a rise in temperature, pulse and leukocyte count, surgical intervention is necessary to prevent perforation and peritonitis. In both the early and late stages of acute cholecystitis, the gall bladder can often be removed easily and safely, especially if done from above downward, but if such is not possible, it is better to remember that there is still a place for cholecystostomy. These are situations where discretion is the better part of valor.

Perforated Peptic Ulcer

Most of these patients will give a history of previous symptoms or therapy, or both, but at least 25 per cent will have had neither, and the perforation is the first indication of the presence of an ulcer. In addition to history and physical findings, the x-ray is a most important diagnostic aid. In the past, I think most of us have agreed with the principles put forth by the late Dr. Roscoe Graham and others, who advised only closure of the perforation as emergency therapy, and left such major procedures as resection, gastroenterostomy, and vagotomy to be done under more ideal conditions. Recently, General Sam Seeley, Chief of Surgery at Walter Reed Hospital, has drawn a sharp focus on this problem, and his amazing results may alter our therapy rather drastically. He has reported 106 consecutive, unselected cases of perforated ulcer, with only six deaths. In five of these the patient was moribund on admission and no active therapy was possible. Thus, there were actually 101 cases in

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which his plan of treatment could be carried out, with only one death. Although we are trying this plan our series is too small to justify valid conclusions. The general features of the program advocated by General Seeley include:

1. Continuous gastric suction. It must be effective at all times.

2. The patient must be kept on the *left* side.

3. Morphine sulphate is administered as frequently as needed.

4. Adequate and accurate replacement of fluids and electrolytes.

5. Daily administration of antibiotics: penicillin, 1 million units; streptomycin, 1 gram; and sodium sulfadiazine, 2.5 grams.

6. Milk and cream and the usual ulcer feedings, starting on the fourth or fifth day.

Acute Pancreatitis

In one year, the diagnosis of acute pancreatitis was made and proved, either by the laboratory, at operation, or on postmortem examination, in twelve cases at the two Duluth hospitals. It was probably overlooked in many more because of failure to determine the amylase level, which is the single most important diagnostic aid in this disease. On several occasions, this diagnosis was considered so late that serum amylase determinations were inconclusive. Acute pancreatitis will be recognized more frequently if it is included in our regular plan of differential diagnosis. We generally consider two forms of the disease:

1. Acute interstitial pancreatitis, which is characterized by upper abdominal pain and an elevated serum amylase.

2. Acute hemorrhagic pancreatitis in which the amylase level is also elevated. Here it is the shock-like condition of the patient that differentiates the two varieties, and in the latter the morality rate is extremely high. If the patient survives, a suppurative process may develop, and this is probably the only time in the disease when surgery is indicated and helpful.

An amylase determination is relatively simple. It requires only an incubator or water bath, and the ability to carry out a blood sugar determination. Keith[2] and his co-workers found consistently higher amylase levels in peritoneal fluid than in the blood serum in cases of pancreatitis. They emphasized that these levels remain elevated for two to four days after the serum amylase has returned to normal. It is comparatively simple to obtain fluid from the peritoneal cavity. Using 1 per cent novocaine infiltration of the abdominal wall and a short beveled needle, select a site about 5 centimeters below the umbilicus in the mid-line. It may be preferable to force air through the needle to push the gut away. If a turbid yellow fluid of high amylase content is obtained it is indicative of interstitial pancreatitis, whereas reddish brown fluid implies hemorrhagic pancreatitis. If a dark, mahogony colored, foul smelling fluid is obtained, it suggests strangulation obstruction or mesenteric thrombosis.

Mesenteric Vascular Occlusion

This lesion poses one of the most difficult diagnostic problems, and early operation is paramount if we are to expect a reasonable survival rate. Vascular obstruction, usually a thrombosis, most often involves the superior mesenteric artery or vein, but the branches of this or other mesenteric vessels can be affected. Too often the signs and symptoms are so inconclusive that valuable time is lost before operation is undertaken. When bloody stools occur, the lesion may no longer be amenable to surgical therapy. While I make no plea for uninhibited exploratory operations, I am convinced that when this lesion is attacked early with the help of antibiotics and anticoagulants, resection and immediate anastomosis will produce reasonable results in many more cases than we have come to expect from marsupialization of the involved gut.

Wound Dehiscense

Finally, a subject not commonly considered in acute surgical conditions of the abdomen is that of wound dehiscence. Fortunately, with better preoperative care and with the correction of protein and vitamin deficiencies, we are seeing this problem less frequently. However, if it occurs, it is an emergency of the first nature. When bowel or omentum protrudes through an opening in the peritoneum, valuable time will be lost if you try such measures as adhesive strapping and tight binders. These only delay healing and disturb physiologic processes. Immediate closure of the peritoneal cavity is necessary and should be carried out by the simplest procedure possible. This is best accomplished by a through and through

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ACUTE ABDOMINAL CONDITIONS

Urological Aspects

THEODORE H. SWEETSER, M.D.
Minneapolis, Minnesota

As DID all good teachers of surgery, my professor of surgery at Columbia, George Brewer, insisted that we consider all possibilities before arriving at a diagnosis by elimination. But in the stress of active practice, we may be tempted to jump at conclusions prematurely, especially when the patient and his relatives are goading us to action. Unfortunately, the one test or question forgotten or neglected may be the key to the diagnosis.

Sometimes the key is to be found in a carefully taken history, even the family history; sometimes it is in some part of the complete physical examination. The patient may forget to say that his mother died of tuberculosis when he was ten years old, or you may neglect a rectal or vaginal examination, a simple lumbar percussion test, or catheterization of a patient with a palpable suprapubic mass. One of my very competent surgeon-friends once reported two cases in which he very nearly operated for acute appendicitis when rectal examination demonstrated acute seminal vesiculitis.

The urinary and male genital tracts, being mostly retroperitoneal and extraperitoneal, are frequently forgotten in considering acute abdominal conditions. Even when kept in mind, the differentiation may be troublesome.

The differentiation between acute appendicitis and obstructing right ureteral calculus may be very difficult, especially if urinary infection accompanies the ureteral blockage. Many authors have noted the frequency of error. The character and location of pain and tenderness may be misleading. Both conditions may give pain limited to the abdomen, nausea and vomiting, fever, abdominal rigidity, leukocytosis, and microscopic or gross hematuria. Lumbar percussion pain is more indicative of ureteral blocking, while so-called "release tenderness," especially if properly localized, points to peritoneal irritation possibly from inflammation in the appendix or gall bladder. Roentgenography, excretory urography, or even cystoscopy, if available, may settle the question. But sometimes the differentiation may still be impossible or the patient may even have both conditions, so that occasionally exploratory laparotomy may be less dangerous than prolonged delay. I remember a number of patients whose appendices were removed because of failure to consider and rule out ureteral calculus, but I also remember one patient who reached the hospital dying from generalized peritonitis because the hematuria accompanying acute retrocecal appendicitis had misled the doctor until too late. I remember another patient who had a right ureteral calculus, proved cystoscopically, but also an acute appendicitis; we were unable to convince the doctor that laparotomy was justified until after the appendix had ruptured.

Appendicitis, acute intestinal obstruction, volvulus, and intussusception have been confused with hydronephrosis caused by obstruction at the outlet of the renal pelvis. If suspected, this is usually diagnosed easily. Prompt early operation will save the kidney, but delay in diagnosis for years will result in loss of the kidney, and that, even in these days, occurs too often.

Perinephritic abscess is another condition which may be forgotten or confused with abscess originating in the gall bladder or appendix. Well-recognized roentgen signs are obliteration of the psoas shadow and scoliosis due to psoas spasm, and a more recently accepted sign is the renal immobility demonstrated by double inspiration-expiration film made during excretory or retrograde pyelography.

The urinary tract must be remembered also in the study of abdominal injuries. The injury from an automobile accident or a football game may involve both spleen and kidney or both bladder and intestinal tract. A gunshot or other penetrating wound may involve the urinary tract as well as the intraperitoneal organs. In one case of gunshot wound of the abdomen at our General Hospital it was fortunate that the urologic resident, who was watching his surgical colleague explore the abdominal cavity, insisted on search-

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ACUTE ABDOMINAL CONDITIONS

Gynecologic Aspects

JAMES J. SWENDSON, M.D.
Saint Paul, Minnesota

FROM a review of the fairly recent literature dealing with gynecologic causes of acute pathologic conditions in the abdominal cavity, it becomes evident that preoperative diagnosis of these conditions often is far from accurate. For instance, considering the number of times ectopic pregnancy was diagnosed incorrectly before operation and the number of times it was not considered but was found during laparotomy, correct diagnosis has varied from 52 to 56 per cent.[2,5] Again, failure of diagnosis prior to operation when bleeding from an ovary has been the cause of symptoms has varied from 24 to 67 per cent.[6] A specific example of the diagnostic difficulties encountered is reported by Schmitz[8] in the case of a patient with a surgically proven ectopic pregnancy in which three gynecologists unanimously diagnosed ectopic pregnancy preoperatively, and three surgeons of equal experience made a diagnosis of acute appendicitis.

It would seem, therefore, that even after taking a careful history (including a detailed menstrual history), making a careful physical examination (including a pelvic examination) and using pertinent laboratory aids, the cause of an acute lower abdominal crisis in a woman of menstrual age often cannot be determined without doing an exploratory laparotomy.

The importance of attempting to make an accurate preoperative diagnosis becomes apparent, however, when one considers that some acute gynecologic conditions call for surgical intervention while others do not. Although the former conditions are usually more obvious and dramatic in their manifestations than the latter, careful evaluation of signs and symptoms will encourage prompt intervention in the cases in which it is indicated and will lead to further observation and study of the cases which do not require operation.

Some clarification of the problem might result from considering the more important pathological conditions which affect each of the female reproductive organs to produce acute symptoms of possible surgical significance.

Oviducts

Of tubal origin, there are acute salpingitis and ectopic pregnancy. The former condition is usually, but not always, gonorrheal in origin. As a rule, it begins with chills and high fever, most often at the end of a menstrual period. There is usually a vaginal discharge. Smears taken from the cervix and/or Skene's glands frequently are positive for the gonococcus. Often, an acutely tender, unilateral, sausage-shaped mass can be palpated on pelvic examination. It is possible to mistake an acutely inflamed appendix anomalously located in the cul-de-sac for an inflamed tube.

The treatment of acute salpingitis is definitely medical, for, since the availability and use of antibiotics in the treatment of acute pelvic inflammatory disease, many young women have retained the patency of their tubes and so have been able to bear children.[3] Even when salpingitis is discovered during laparotomy, the tubes should not be removed.

Ectopic pregnancy, the other and more frequent cause of tubal pathology, is more difficult to diagnose, except in the 15 per cent of patients who first are seen in shock with rather severe abdominal pain and with signs of hemoperitoneum due to tubal rupture.[2] The other 85 per cent of cases present subacute symptoms. Low, localized abdominal pain, sharp and crampy in character, is the most dependable symptom. Slight to moderate vaginal bleeding, often appearing several days before the pain, is frequent. Definite amenorrhea, often mentioned as a classical sign of ectopic pregnancy, is the exception rather than the rule. The patient most often gives a history of daily or intermittent bleeding beginning when she is several days beyond her expected menstrual date, the bleeding lasting for several days or even for several weeks. Reports of the finding of a palpable adnexal mass have varied all the way from 25 to 43 to 70 per cent of cases and, therefore, a mass is not of differential significance unless the diagnosis of ectopic pregnancy other-

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Dr. Swendson is Clinical Instructor in Obstetrics and Gynecology, University of Minnesota Medical School.

wise is clear.[1,2,5] Pregnancy symptoms are not dependable. Pregnancy tests are of questionable value. The leukocyte count may or may not be elevated. Repeated hemoglobin determinations may be of value when observation over a period of several days is necessary to make a diagnosis justifying operation.

At laparotomy, cornual removal of the affected tube only or removal of an involved ovary and the tube will be necessary, but additional surgical procedures, such as appendectomy or suspension of the uterus, should be discouraged.

Ovaries

Acute symptoms of ovarian origin are those due to hemorrhage from an ovary and those due to torsion of the pedicle of an ovarian cyst. The former condition occurs with relative frequency, one author having estimated its incidence as once for every thirteen times that acute appendicitis causes lower abdominal symptoms.[7] The latter condition, that is, torsion of an ovarian pedicle, occurs rather rarely.

Intra-abdominal bleeding originating in the ovary usually is from a corpus hemorrhagicum and therefore occurs during the last two weeks of the menstrual cycle. Women under twenty-five years of age are most often affected. Frequently, there is a history of previous attacks. For some unexplained reason, 88 per cent of hemorrhages from the ovary occur on the right side, so that the symptoms are confused frequently with those of an acute appendicitis.[6] The pain and tenderness of ovarian bleeding, however, usually are not as acute, and the location of the tenderness is an inch or more below McBurney's point. In fact, the symptoms and findings usually are not quite severe enough to require hospitalization until two or three days after their onset and then they gradually subside during the next two or three days. Most episodes of corpus hemorrhagicum bleeding should escape surgical interference.

In about 6 per cent of cases of ovarian hemorrhage, severe pain comes on suddenly and pelvic examination reveals an acutely tender mass in the vaginal vault on the affected side. The symptoms then simulate those of ectopic pregnancy rather than acute appendicitis and are almost always due to a ruptured corpus luteum cyst. Such an attack may occur at any time during the menstrual cycle. There is frequently a past history of dull, chronic, unilateral pelvic pain. The acute symptoms are severe enough and the bleeding is profuse enough to warrant surgical treatment, which should consist of excision of the cyst with preservation of the ovary, if possible, rather than oöphorectomy.

Spontaneous torsion of the pedicle of an ovarian cyst is an infrequent cause of acute abdominal symptoms, but should be kept in mind. It occurs most frequently in the second, third, and fourth decades of the lives of women having small or medium-sized ovarian cysts with long, thin pedicles. This mechanical accident makes itself known by sharp, crampy pains in the lower abdomen, followed by nausea and vomiting. On examination, 84 per cent of cases have shown a palpable tumor.[4] The treatment of the condition is obviously surgical, usually consisting of removal of the affected ovary.

Uterus

Of the conditions of uterine origin causing acute abdominal symptoms, threatened abortion is the commonest one. Not infrequently, its symptoms suggest the possibility of an ectopic pregnancy. When differentiation of the two conditions is difficult, active treatment is delayed until the symptoms subside or until the increase in severity of crampy pains either results in increased external bleeding and abortion or produces signs of intra-abdominal bleeding and leads to a decision to open the abdominal cavity.

Acute parametritis subsequent to uterine instrumentation or cauterization of the cervix is an occasional cause of pain in the pelvis and of an elevated temperature. The inflammation usually subsides under treatment with sulfonamides or antibiotics.

On rare occasions, necrosis of a myoma of the uterus may occur and cause exquisite, localized tenderness and low-grade fever. Such necrosis follows interference with the notoriously poor blood supply of these tumors. The treatment of this condition is myomectomy or, in some cases, hysterectomy.

Summary

To summarize this brief discussion, differential diagnosis of the various gynecologic conditions causing acute lower abdominal symptoms fre-

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ACUTE ABDOMINAL CONDITIONS

Summary of Discussions

N. LOGAN LEVEN, M.D.
Saint Paul, Minnesota

THE subject of acute abdominal conditions has been ably presented from the viewpoint of the radiologist, the urologist, the gynecologist, and the surgeon. This is a large subject to summarize, so I will only touch on a few points.

We are fortunate to be practicing in a period when we have the benefit of greater help from x-ray studies; more adequate knowledge of the physiology of the patient as a whole, including fluid and electrolyte balance; availability of blood replacement by whole blood or blood substitutes; antibiotics of increasing number and value, and the use of Wangensteen's suction technique and its multitubular successors for intestinal decompression.

Instead of routine administration of glucose in saline intravenously, some attention is given to the quality of the solutions, as evidenced by the increasing concern with conditions which result in potassium deficiency. The pediatricians first pointed out the significance of potassium loss in cases of prolonged diarrhea or vomiting. We now realize that the patient on gastric suction may require a daily supplement of potassium in his intravenous fluids. The administration of fluids need no longer be a matter of guesswork but can be accurately determined.

These valuable adjuncts in the care of patients have made the extreme "urgency" of acute abdominal conditions less necessary. A somewhat smaller premium may be placed on the dexterity, speed, and courage of the surgeon than formerly. We are now able to prepare these patients for surgery by rapid correction of dehydration and loss of electrolytes, correction of shock by transfusions, gastric and intestinal decompression, and the institution of antibotic therapy. We are enabled to arrive at a more accurate diagnosis in many cases by observing the patient repeatedly in this period of pre-operative preparation. Thus the mortality and morbidity in the management of these cases has been decreased.

We should remember the teachings Dr. Rigler has presented. A qualified radiologist is not always available to give us the benefit of expert interpretation of the x-ray picture. We must often rely on our individual ability and therefore should avail ourselves of any opportunity to improve this knowledge.

There is one group of cases that might be included in the list of acute abdominal conditions that for lack of time we have not discussed at length. These are the congenital malformations of the gastrointestinal tract, the atresias, stenoses, malrotations of the bowel, volvulus, hernia of the diaphragm, et cetera. Much information may be learned from a flat plate of the abdomen and chest without the administration of barium. Use of barium in these cases may complicate the operation and the postoperative course, as well as present the hazard of aspiration into the air passages.

I would like to stress the necessity of differentiating extra-abdominal from intra-abdominal conditions. Lesions of the pleura, lungs, heart, spinal column, and spinal cord may be the cause of abdominal pain, tenderness, and rigidity. Often a chest x-ray in children may save a needless operation. A pneumonia may present the abdominal findings of an inflamed appendix. The pre-eruptive stage of lower dorsal herpes zoster may simulate abdominal lesions. Extreme hyperesthesia over the area of distribution of the nerve should put one on guard.

In young children constipation not infrequently may cause right lower quadrant pain due to distention of the cecum. This may be promptly relieved by a small enema.

Although diarrhea is not common in appendicitis, we should watch out for acute appendicitis developing in the course of acute enteritis, especially in children. The tragedy of overlooking this diagnosis is obvious.

Probably no consensus will ever be reached regarding the problem of early removal of the gall bladder versus conservative management in cases of acute cholecystitis. This condition is in no way

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Summary of Symposium on Acute Abdominal Conditions presented at the annual meeting of the Minnesota State Medical Association, Rochester, Minnesota, May 1, 1951.

analogous to acute appendicitis. Dr. McDonald has given the principles that should be followed in these cases.

Recent studies of Gross, Comfort, Mathieson, and Power have shown that the administration of opiates unquestionably may produce elevations of values for serum enzymes in some patients without pancreatic disease. Thus the clinical features as well as the laboratory data should point to pancreatitis or pancreatic disease to establish this diagnosis.

The value of the nonoperative management of perforated peptic ulcer has been well demonstrated by General Seeley of Walter Reed Army Hospital. This method of treatment deserves our careful consideration. It should be pointed out that the results of the operative treatment of these cases have also improved, undoubtedly due to antibiotics and a more intelligent management of the patient as a whole. At the Veterans Administration Hospital in Minneapolis on the surgery service under the supervision of Lyle Hay, eighty-one patients with acute perforated peptic ulcer were operated on with but two deaths. There were an additional five patients who were seen late in whom abscesses were drained. Three deaths occurred in this group. In Hay's series only 20 per cent were seen in the first six hours, whereas in General Seeley's series, conservative treatment was established in 50 to 60 per cent of cases within six hours after perforation. The incidence of complications is less in conservative treatment. These two series indicate that intensive interest in and excellent management of these cases will decrease the mortality of this condition using either method of treatment.

Bowel obstruction is not an infrequent acute abdominal condition which we are called on to treat. In these cases there is usually no abdominal rigidity apart from a strangulated coil of gut or with peritonitis. Evidence of a strangulated hernia should be sought. One may easily overlook a small femoral hernia in an obese patient. Previous surgery, recent or old, often is the cause of obstruction, due to an adhesive process. If there is no evidence of a strangulated obstruction, conservative treatment by intestinal decompression and correction of electrolyte and fluid balance is indicated. If strangulation of the bowel is suspected, or if simple obstruction has not cleared up on a trial of conservative therapy, exploration of the abdomen is indicated. We should remember that obstructions due to malignancies may present acute symptoms.

In the cases of trauma to the abdomen, the chief question is whether or not a hollow viscus is ruptured. If this is apparent, the injury—lacerated bowel or ruptured bladder—must be repaired. If a solid viscus is involved, blood loss must be replaced. The bleeding may stop and the patient may be observed. Evidence of continuing bleeding will require surgical intervention, as in the case of injuries to the spleen and less often in injuries to the liver or kidney.

Dr. Sweetser clearly indicated the problem of the differentiation between acute appendicitis and obstructing right ureteral calculus, perinephric abscess, and acute seminal vesiculitis.

Not only in the field of gynecology, as shown by Dr. Swendson, but in other acute abdominal conditions as well, it is to be remembered that exporatory laparotomy may be necessary to establish the cause.

In conclusion, I wish again to emphasize the need of preoperative preparation in all patients having acute abdominal conditions.

FROM STONE AX TO ATOM BOMB

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such American citizens to a totalitarian country would effectually cure them. Subversives forced to leave for totalitarian shores, as a rule, long to return to America. Let us begin to think American. We need not boast. America is unique, however, in having fostered a culture which has brought to the common man a standard of living that has not been equaled anywhere on earth at any time. This was not presented us on a silver platter but is the result of sacrifice on the part of our forebears. It will require effort and sacrifice on our part to preserve our precious heritage. May our leaders be given understanding to meet the imminent crisis!

THE 1950 CANCER STATISTICAL STUDY

By the Minnesota Department of Health

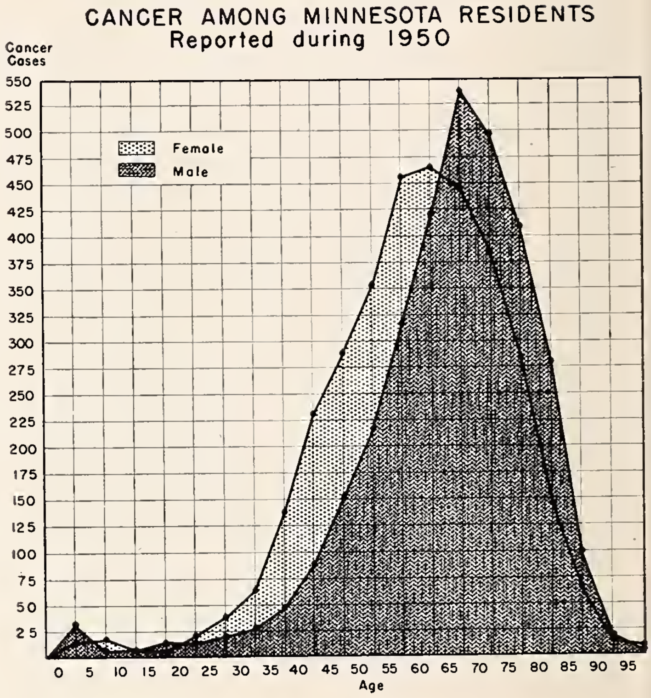
N. O. PEARCE, M.D.
Acting Director, Division of Heart Disease and Cancer Control
and
D. S. FLEMING, M.D., M.P.H.
Chief, Section of Preventable Diseases
Minneapolis, Minnesota

MINNESOTA residents hospitalized for treatment of cancer have been voluntarily reported to the Minnesota Department of Health, for study purposes, since January 1, 1948. During the first year hospitals reported under the authority of Board of Health Regulation. In 1949 the State Legislature by statute authorized the reporting program to assure legal protection for those participating.

This program of reporting of cancer cases was ended December 31, 1950. During the three years' study, 19,094 hospitalizations of Minnesota residents with cancer were reported to the Division of Heart Disease and Cancer Control of the Minnesota Department of Health. The study was discontinued at this time because it was felt that further reports would not significantly add to or change the data compiled from the analysis of the cases on hand. In the present report, we shall review the picture of cancer among Minnesota residents in 1950 and avoid discussion that would duplicate material presented in the 1948-1949 reports, which were published in MINNESOTA MEDICINE issues of January and August, 1950.

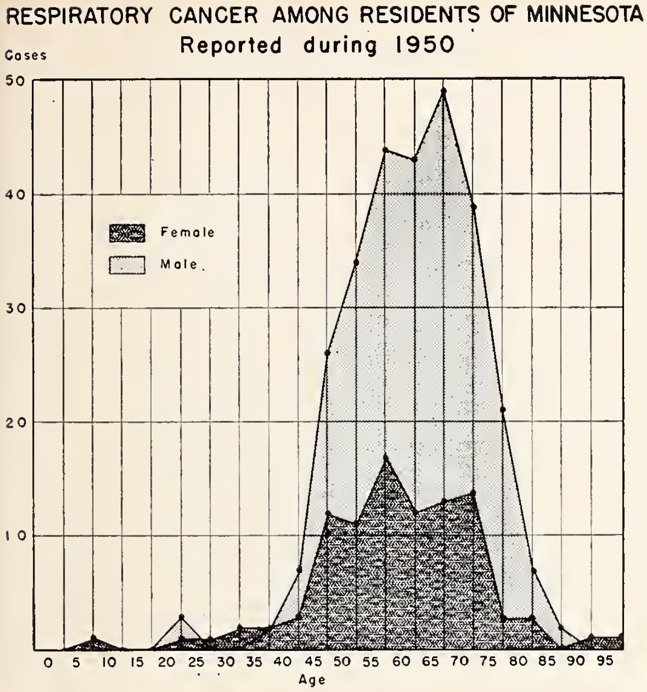
Distinction must be made between the number of reports received and the number of individuals represented by these reports. The 8,445 reports received for 1950 each represented a separate hospitalization but not necessarily a different case. When the readmissions to hospitals had been removed from the study, it was found that 6,706 residents of Minnesota were hospitalized with cancer at some time during 1950 and reported to the Department. Of these persons, 86.5 per cent, or 5,804, were new cases never previously reported, and 902 cases had been reported in 1948 or 1949. Of the new cases, many gave histories of malignancy or hospitalization in years before the study was begun.

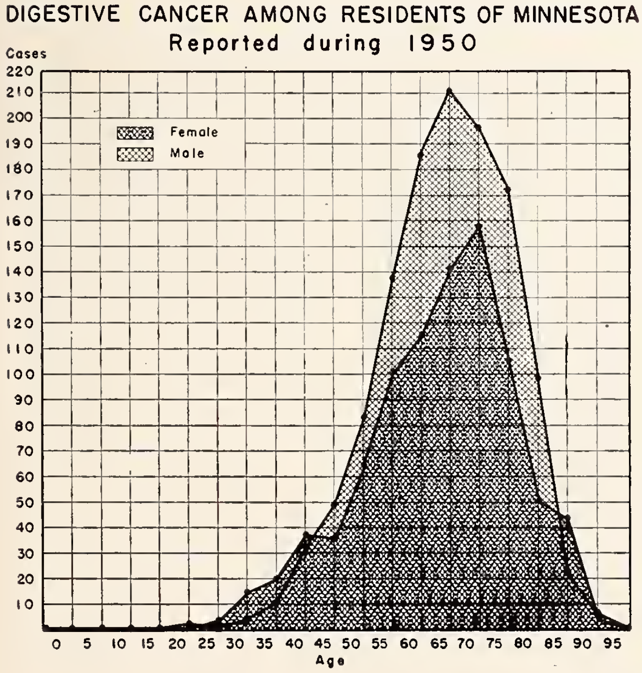
Several changes made in methods of reporting at the beginning of 1950 reveal data not available during the first two years of the study. More reliable information was obtained by rewording the question pertaining to the methods of diagnosis. On the basis of 8,445 hospitalizations, diagnosis in 82 per cent of the reports was confirmed by biopsy, in 4 per cent by gross examination at surgery, in 3 per cent by x-ray, in 9 per cent by clinical examination only, and in 2 per cent by miscellaneous combinations. In every case where history indicated that the original diagnosis of cancer was based on a tissue examination, it was so classified, regardless of whether confirmation was again made during the most recent hospitalization.



Queries on methods of treating these patients during hospitalization were included in the questionnaire. Data obtained revealed surgery to be the single treatment of choice in 48 per cent of the hospitalizations, radium alone in 2 per cent, and x-ray alone in 6 per cent. Surgery, x-ray and radium were used in different combinations in 9 per cent of the cases, while 14 per cent received palliation, 4 per cent received other treatment, and 16 per cent received no treatment.

Of the 6,706 patients hospitalized for cancer during 1950, 2,712 or 40.4 per cent were reported


RESPIRATORY CANCER AMONG RESIDENTS OF MINNESOTA
Reported during 1950


DIGESTIVE CANCER AMONG RESIDENTS OF MINNESOTA
Reported during 1950

to have died of cancer in the course of the year. Most of these deaths, 82 per cent, occurred in hospitals; but 14 per cent died at home; 4 per cent died in rest homes; and less than 1 per cent died in locations outside the state. Information on deaths occurring outside hospitals was obtained through the death certificates received by the Division of Vital Statistics of the Minnesota Department of Health. Although a total of 4,375 Minnesota residents died in 1950 of cancer, as indicated on death certificates, only 2,282 of these deaths occurred

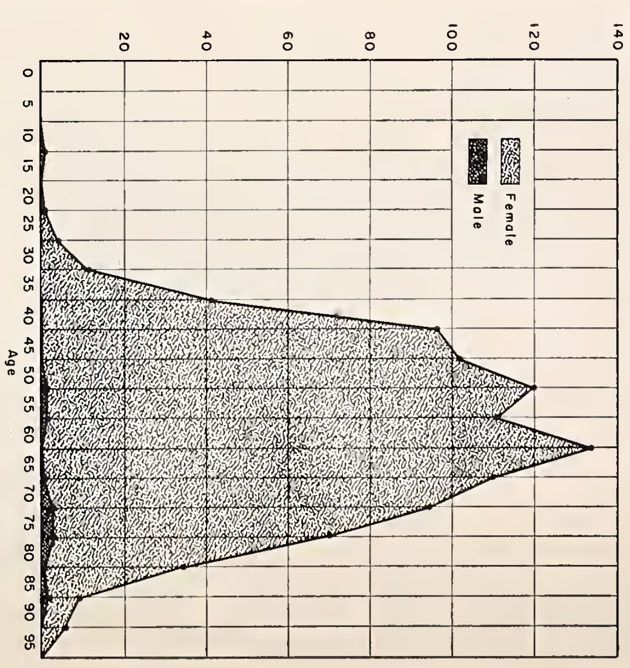
TABLE I. CANCER CASES REPORTED ACCORDING TO COUNTY OF PATIENT'S RESIDENCE

County	Total Number of Reports Received 1948	1949	1950
Aitkin	24	28	37
Anoka	31	18	34
Becker	45	66	98
Beltrami	31	36	50
Benton	17	17	19
Big Stone	19	16	28
Blue Earth	91	89	113
Brown	53	57	68
Carlton	42	45	51
Carver	20	27	42
Cass	31	20	45
Chippewa	34	37	51
Chisago	24	19	42
Clay	23	22	32
Clearwater	16	13	29
Cook	5	3	7
Cottonwood	13	23	32
Crow Wing	50	52	96
Dakota	49	68	86
Dodge	5	4	17
Douglas	42	32	60
Faribault	22	20	55
Fillmore	7	9	31
Freeborn	30	40	95
Goodhue	57	66	109
Grant	10	19	27
Hennepin (rural)	132	109	224
Houston	4	10	13
Hubbard	15	25	20
Isanti	15	21	28
Itasca	68	65	77
Jackson	18	13	26
Kanabec	21	9	30
Kandiyohi	36	31	43
Kittson	13	17	13
Koochiching	28	35	49
Lac Qui Parle	24	14	27
Lake	19	26	39
Lake of the Woods	9	8	6
Le Sueur	30	41	72
Lincoln	11	16	14
Lyon	41	25	51
McLeod	21	28	67
Mahnomen	10	8	11
Marshall	22	12	25
Martin	27	29	58
Meeker	40	28	47
Mille Lacs	44	37	36
Morrison	53	48	96
Mower	47	61	100
Murray	21	14	34
Nicollet	31	23	31
Nobles	23	36	42
Norman	24	21	31
Olmsted	3	3	122
Otter Tail	75	73	92
Pennington	34	29	31
Pine	24	37	44
Pipestone	9	10	20
Polk	79	73	127
Pope	16	13	43
Ramsey (rural)	21	23	59
Red Lake	17	16	37
Redwood	27	27	77
Renville	28	38	31
Rice	45	42	74
Rock	5	3	20
Roseau	26	16	26
St. Louis (rural)	214	237	286
Scott	20	27	39
Sherburne	17	12	20
Sibley	25	23	40
Stearns	126	146	248
Steele	23	19	42
Stevens	14	23	24
Swift	30	22	53
Todd	47	33	62
Traverse	7	6	13
Wabasha	25	20	42
Wadena	24	18	30
Waseca	8	12	32
Washington	45	56	78
Watonwan	26	23	47
Wilkin	17	16	36
Winona	44	54	104
Wright	40	25	71
Yellow Medicine	22	19	28
Minneapolis	1358	1416	2023
St. Paul	701	844	1195
Duluth	289	327	460
Unknown	7	36	4
Total	5176	5473	8445

TABLE II. DISTRIBUTION OF CANCER ACCORDING TO AGE AND SEX

Age	Total	Male	Female	Breast		Genital (F)		Genital (M)		Urinary		Stomach		Colon		Rectum		Other Digestive		Respiratory		Buccal		Skin		Brain & CNS		Leukemia		Hodgkins		Other	
				M	F	Uter.	Other	Pros.	Other	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Total	6706	3256	3450	17	945	554	258	535	61	276	130	436	213	326	317	202	154	261	208	279	96	110	51	231	95	74	66	141	102	62	55	245	206
0- 4	47	33	14							5	2							1	1							3	2	13	5	1		10	4
5- 9	29	9	20							1	5									1	1					1	6	2	4			4	4
10-14	19	10	9		1			1																		3	2	6	4		1		1
15-19	23	18	5				1															2				3		4	2	4		5	2
20-24	40	17	23		1		1		2	1	1			1	1	2				1	3	1	1	1	1		4	2	2	3	3	3	5
25-29	62	22	40		4	10	5		3				2	1	1	1			1	1		1		2	6	1	1	4	2	4	4	4	4
30-34	95	28	67		12	8	8		7			2	4	2	6	1	2		3	2		2	1	1	3	2	3	3	1	4	6	2	10
35-39	186	49	137	1	41	41	14	1	4	5		3	1	7	14	1	2		3	2	2	4	2	4	1	4	1	3	3	2	3	8	9
40-44	319	88	231	1	96	45	15	2	3	3	3	13	3	11	20	5	13	4	2	7	3	5	2	5	3	9	6	5	5	8	5	7	10
45-49	438	151	287	1	102	62	33	1	3	15	6	12	9	14	14	12	5	11	8	26	12	4	1	20	7	11	5	6	5	4	3	11	15
50-54	569	217	352	2	120	73	32	1	5	12	4	27	11	21	32	16	16	20	6	34	11	8	5	17	6	11	15	8	5	7	3	28	13
55-59	772	316	456	2	111	103	40	19	6	35	16	42	20	41	40	27	24	28	17	44	17	6	4	26	11	4	8	9	10	4	5	23	30
60-64	915	447	468		134	88	28	50	5	47	17	62	23	49	49	43	21	32	32	43	12	18	14	30	10	10	4	24	13	1	9	33	23
65-69	984	539	445	1	110	56	36	101	6	49	22	84	35	57	44	24	21	46	41	49	13	15	4	37	12	7	5	14	12	7	4	42	30
70-74	876	493	383	3	94	32	14	117	4	45	15	71	54	46	36	33	22	47	46	39	14	12	5	26	12	4	4	14	9	4	5	28	21
75-79	690	409	281	3	70	18	23	100	8	29	23	73	29	42	39	18	13	40	25	21	3	10	8	24	5			17	10	5	2	19	13
80-84	423	279	144	1	34	15	5	98	5	21	11	33	13	24	20	15	9	27	8	7	3	13	2	18	8			4	7	2	2	11	7
85-89	165	100	65	2	9	2	2	36		6	4	10	6	8	8	3	5	2	15	2		8	2	12	6	1		2	2	2		6	4
90-94	38	22	16		6			7		1		4	2	1	1		1	2			1	1		5	3				1			1	1
95-99	7	3	4								1				1	1					1			2	1								
Unknown	9	6	3			1	1	1		1			1	1				1						1				1					

BREAST CANCER AMONG RESIDENTS OF MINNESOTA
Reported during 1950

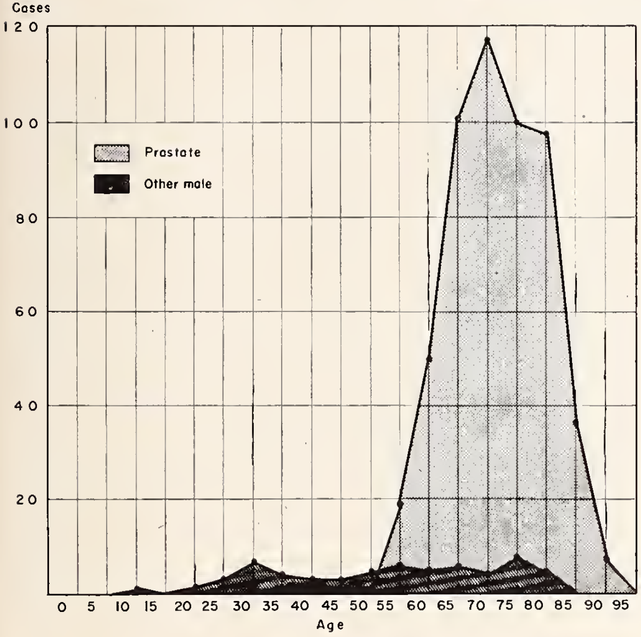


in hospitals and were thereby reportable to our study in 1950.

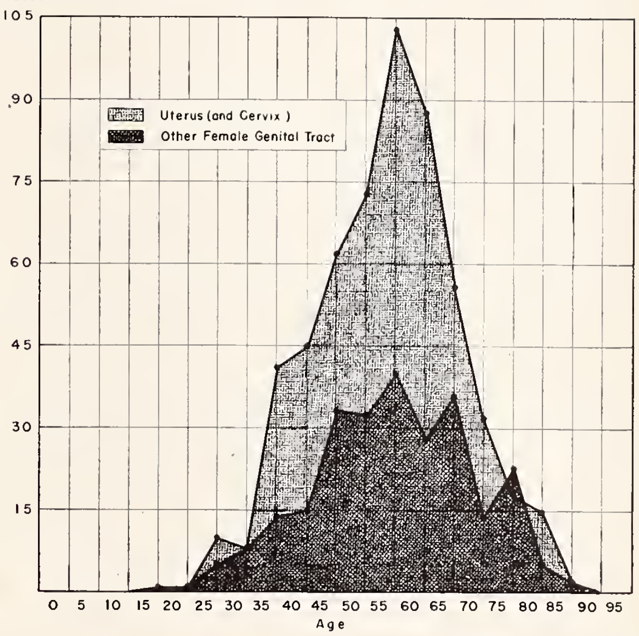
The number of hospitals contributing to the study continued to increase during the year. By the end of 1950, 188 hospitals had reported cases. There was only one hospital from which reports were expected and not received. It was impossible, however, to evaluate the completeness of reporting by each hospital co-operating, except through a check of their cancer deaths with death certificates received in the Division of Vital Statistics. This revealed that only 50 per cent of the deaths occurring in hospitals were reported within two months after the death, and follow-up work was carried out on all known cancer deaths not reported for this study. Final analysis revealed that of the 2,282 deaths occurring in hospitals during the year, 2,221 were included in the study in 1950. Follow-up on death cases also brought out the discrepancies in diagnosis between a hospital medical record and the medical information contained on the death certificate. Frequently patients reported as cancer deaths to Vital Statistics were proved negative cancers on further investigations of autopsy and hospital records.

Only one appreciable difference from the two previous years is noted in the distribution by site of the total number of cancers. Cancers of the skin in 1950 numbered 326, or 5 per cent of the total cancer cases reported. They numbered only 2 per cent of the total in 1948-49. This increase is attributed to a change in coding

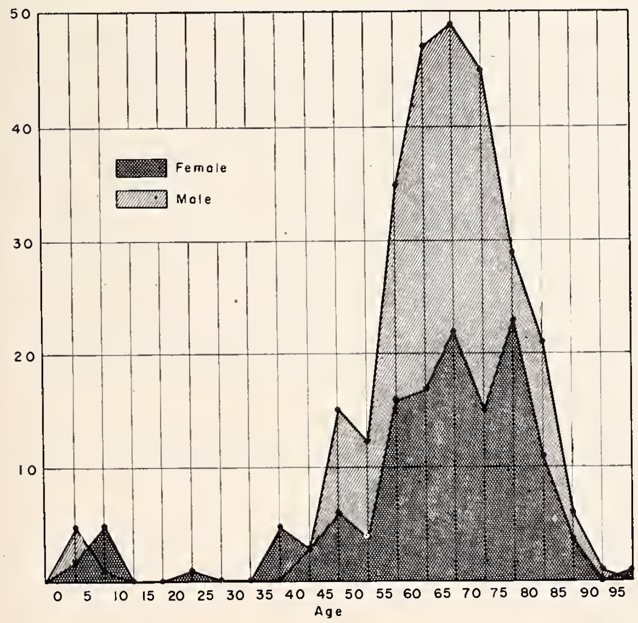
CANCER OF MALE GENITALIA
among Minnesota Residents, reported during 1950



CANCER OF FEMALE GENITALIA
among Minnesota Residents reported during 1950



URINARY CANCER AMONG RESIDENTS OF MINNESOTA
Reported during 1950



diagnoses (from the use of Standard Nomenclature of Diseases to International Statistical Classification of Diseases, Injuries, and Causes of Death) rather than an actual increase in the prevalence of the disease.

Although the digestive tract continues to show more cases of cancer than any other of the body systems, the picture appears quite different when a breakdown is made by organs. In the total picture, cancer of the digestive tract comprises 32 per cent of the total, and cancer of the breast is second with 14 per cent. When the breakdown is made, however, cancer of the stomach accounts for 9.7 per cent, colon 9.6 per cent, rectum 5.3 per cent, and other digestive organs 7 per cent. Cancer occurred in the following percentages at various sites:

Breast	14.34
Stomach	9.67
Colon	9.58
Cervix and uterus	8.26
Prostate	7.97
Other digestive tract	6.99
Other, in general	6.72
Urinary tract	6.05
Respiratory tract	5.59
Rectum	5.30
Skin	4.86
Other female genital	3.84
Leukemia	3.62
Buccal	2.40
Brain and CNS	2.08
Hodgkin's disease	1.74
Other male genital	.90

Results of the total findings of the three years study will be published soon.

THE EAR FINDINGS IN BRAIN TUMORS

HENRY A. BROWN, M.D., and J. GRAFTON LOVE, M.D.
Rochester, Minnesota

APPRECIABLE loss of hearing in brain tumors, excluding those located in the cerebellopontine angle, is an unusual finding. Dandy stated that (1) either the right or left temporal lobe of the brain might be removed and the hearing, determined by careful audiometric examination, remain normal; (2) the entire right cerebral hemisphere had been removed with no decrease in auditory acuity; (3) the left occipital, frontal, and temporal lobes of the brain had been removed in different individuals without apparent deafness, and (4) he had never seen a brain tumor located between the medial geniculate body and the inferior colliculus anteriorly, and the point of entrance of the eighth nerve posteriorly, which interfered with cochlear function.

Culler found that, in animals, removal of the entire cerebral cortex brought about a 70 to 75 decibel loss of hearing, that destruction of the crossed fibers of the opposite lateral lemniscus caused a 10 decibel drop in hearing, and that elimination of the fibers of the uncrossed lateral lemniscus resulted in a 10 decibel deafness. It would seem, therefore, that crossed and uncrossed cochlear fibers are of equal importance in carrying out the function of hearing.

Tumors of the temporal lobes produce a facilitating influence by which induced labyrinthine nystagmus is of longer duration toward the side of the lesion than toward the contralateral side. Fitzgerald and Hallpike first demonstrated this phenomenon in man by douching the ears alternately with hot and cold water and timing the resulting nystagmus. Thus in a lesion of the right temporal lobe, hot water syringed into the right ear, and cold water syringed into the left ear, both would produce a nystagmus to the right, the nystagmus in each case being of longer duration than that resulting from douching of the right ear with cold water and the left ear with hot water, both of which would produce nystagmus to the left or away from the side of the tumor. Cawthorne, Fitzgerald and Hallpike used the term "directional preponderance" for this prolonged nystagmus. At the Mayo Clinic, Anthony recently confirmed the finding of directional preponderance of induced nystagmus toward the side of the lesion in tumors of the temporal lobe but was not sure that the finding added appreciably to the information already obtained from other examinations.

It is our belief that, in most instances, disturbance in vestibular or cochlear function by brain tumors, to such an extent that the otologist can be of real value in the diagnosis, occurs only when the lesion injures the cochlear or vestibular divisions, or both divisions, of the eighth nerve from their nuclei peripherally. This usually places the tumor in the cerebellopontine angle. Meningiomas, gliomas, hemangiomas, aneurysms, cysts and many other types of tumor may be found in this region between the petrous pyramid, brain stem and cerebellum, but the most common is acoustic neurofibroma, a tumor which originates from the neurilemma of the vestibular branch of the eighth nerve, and arises usually, if not always, from within the internal auditory meatus.

Cushing was the first to stress the chronology of symptoms produced by this tumor and stated, "The clinical diagnosis of acoustic neurofibroma can be made with reasonable assurance only when auditory manifestations definitely precede evidence of involvement of other structures of the cerebellopontine angle." Deafness was the first symptom in twenty-five of Cushing's thirty cases. Ireland found deafness to be the most outstanding single symptom in seventy-eight of ninety-two cases; however, he found disturbed vestibular function as shown by caloric test to be the most common finding in adequately examined patients. He stated that testing of the vertical canals of the opposite ear had not been carried out in his series. Nonfunctioning labyrinth on the side of the acoustic neurofibroma, and nonfunctioning vertical canals and normal horizontal canal on the contralateral side seem to be the generally accepted finding in acoustic

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Dr. Brown is in the Section on Otolaryngology and Rhinology, and Dr. Love is in the Section on Neurologic Surgery, Mayo Clinic, Rochester, Minnesota.

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neurofibromas. We had come to wonder why we were unable consistently to duplicate this finding in carrying out caloric examinations in instances of acoustic neurofibroma, and consequently we reviewed the records of 146 patients who had been operated on at the Mayo Clinic and the diagnosis microscopically confirmed.

One hundred and thirty-three patients were considered to have had sufficient examination of hearing for fairly accurate evaluation. In every instance there was some degree of hearing loss; however, two patients presented a moderate loss of hearing in which the conduction element was prominent, and in one patient the only drop in hearing was an island loss for the frequencies of 2048 and 4096. Fifteen patients had mild to moderate nerve deafness. In all eighteen instances in which the loss of hearing was somewhat atypical there was a very underactive or nonfunctioning vestibular labyrinth.

Adequate caloric tests had been carried out in seventy-nine instances. The technique of the test was either that of mass douching of the ear with water at 68°F., as proposed by Bárány, or that of the modified Kobrak ice water test; both horizontal and vertical canals were tested on each side. Nonfunctioning labyrinth on the side of the tumor with normal contralateral horizontal and vertical canals was found in sixty instances, or about 75 per cent of patients. Very hypoactive labyrinth on the side of the lesion with normal contralateral horizontal and vertical canals was found in thirteen instances, or about 15 per cent of patients. Nonfunctioning labyrinth on the side of the tumor with nonfunctioning vertical canals on the contralateral side was present in six, or 7 per cent of patients.

Conclusions

1. In our series of 146 patients with acoustic neurofibroma who underwent operation, every adequately tested patient showed some degree of hearing loss.
2. Patients having mild or atypical loss of hearing all showed marked decrease in labyrinthine function.
3. By far the most common response to caloric stimulation was nonfunctioning labyrinth on the side of the tumor with normal vertical and horizontal canals on the opposite side.

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ACUTE ABDOMINAL CONDITIONS

Surgical Aspects

(Continued from Page 662)

tension type suture without any attempt at closure of individual layers. Usually, this surgery can be carried out with the help of 1 per cent novacaine injected locally, but a general anesthetic should be used when necessary. Closure by layers is not only time consuming, but is unnecessary and often inneffective.

In summary, we would stress the importance of accurate diagnosis, the judicious use of laboratory procedures, and the application of sound surgical principles when dealing with an acute abdomen. Unnecessary trauma may then be avoided in nonsurgical conditions and better results will be obtained in those coming to surgery.

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History of Medicine In Minnesota

MEDICINE AND ITS PRACTITIONERS IN OLMSTED COUNTY PRIOR TO 1900

NORA H. GUTHREY
Rochester, Minnesota

(Continued from the June issue.)

Francis Asbury Sanborn (1837-1921), a member of the regular medical profession, was for thirteen years (1870-1883) a physician and surgeon in Rochester, Olmsted County, Minnesota.

A son of John Sanborn and Caroline Harrington Sanborn, Francis Asbury Sanborn was born on October 19, 1837, in Vermont. The details of his academic schooling have not been available, but it is known that he was a man of superior culture and education. His degree of doctor of medicine he received on June 8, 1859, from the Medical College of the University of Vermont, at Burlington. The *Burlington Daily Times* of the following day described the graduating exercises, held at the town hall, of the class of twenty-seven members; Francis A. Sanborn had chosen as the subject of this thesis, "Faculties of the Mind."

Family records reveal that Dr. Sanborn practiced a year or two in Vermont before settling in Piqua, Miami County, Ohio, where he was attracted by opportunity in the new country. In Piqua on September 12, 1866, he was married to Georgiana De Frees, a native of Piqua and a graduate of Dennison College, Dennison, Ohio; she was born on November 22, 1843, a daughter of George Cavin De Frees and Amanda Furrow De Frees.

In 1870 with their two sons, George De Frees Sanborn (May 26, 1868-April 16, 1874) and Frank Asbury Sanborn (February 9, 1870- ——), Dr. and Mrs. Sanborn came to Rochester, Minnesota. Their third son, Walter De Frees, was born in Rochester on May 22, 1875, and a fourth son, John De Frees, on March 14, 1882. The family home was in East Rochester at the corner of College Street and Dubuque Street. The doctor's first office was on Broadway. After five years in practice alone, Dr. Sanborn was in partnership from February, 1875, to October, 1879, with Dr. Hector Galloway, until Dr. Galloway left Rochester for Fargo, Dakota Territory. In that period Dr. Sanborn and Dr. Galloway were county physicians (jointly) for the city of Rochester and the townships of Rochester, Cascade, Haverhill and Marion; those were the days when the county physician attended the sick poor, furnished his own transportation, supplied medicines and kept case records, all for $200 a year. Later Dr. Sanborn had his office in the Ramsey Building, on Zumbro Street, over the Weber Drugstore and the adjoining offices of Dr. William W. Mayo and his son, Dr. William J. Mayo. A lasting friendship between the two older physicians began in those years, so that subsequently, in the course of his travels, Dr. W. W. Mayo on various occasions paid visits of some weeks in the Sanborn home in Los Angeles. And William J. Mayo, both as a student and as a newly graduated physician, in 1883, found in Dr. Sanborn an understanding friend who encouraged him in his dreams and ambitions and who sometimes acted as a surgical helper in his earliest operations.

Dr. Sanborn is recalled in Rochester as an able and dependable physician, a man of distinguished appearance and careful grooming, a gentleman of high character and fine feeling. His wife was a gracious lady. In the Sanborn home the appointments and the amenities of living were unusual in a middle western town of the time.

When the cyclone of August 21, 1883, brought destruction and death to the northern section of Rochester, Dr. Sanborn was one of the local physicians responsible for the care of the injured, among the wreckage of homes and in the improvised hospital in Heaney's Hall. Influenced perhaps by his storm to seek a more equable climate, in the autumn of 1883 Dr. and Mrs. Sanborn and their three boys removed to Springfield, Missouri, where the doctor had spent the previous winter for the benefit of his health. Two years later the family established their permanent home in Los Angeles, California. In that city, with headquarters on Sunset Boulevard, Dr. Sanborn continued in active medical practice. After Mrs. Sanborn's death on December 17, 1919, he survived less than two years, his death occurring on February 3, 1921.

The youngest son, John De Frees Sanborn, died in Los Angeles on December 17, 1943. The eldest surviving son, Frank Asbury Sanborn, in 1947 had been for forty-four years in residence and in business in Mexico, D. F., Mexico. Walter De Frees Sanborn had retired some years earlier from active participation in the internationally known "Sanborn Hermanos, S. A." and was residing in Los Angeles.

Charles Q. Scoboria, born about 1856, a graduate of the medical department of Harvard University in 1880, was for some twenty-five years an able physician and surgeon in southern Minnesota, long in Sherburne County, for three years in Olmsted County and five in Wabasha County.

Dr. Scoboria came to Minnesota late in 1880 or early in 1881, it is believed, and into 1888 was associated chiefly with Elk River, Sherburne County. In the first few years of that period, however, he was well known in Hennepin, Wright and Stearns Counties and farther north in Itasca and Aitkin Counties also, in all of which he served as a special health officer, appointed by the Minnesota State Board of Health, in quelling epidemics of smallpox, a disease which raged in the state in those years. His reports to Dr. C. N. Hewitt, secretary of the state board, in which he modestly stated that his work was confined for the most part to vaccination and to quarantining of infected families, give a vivid picture of the difficulties and hazards which physicians met in that work: ignorance, superstition and defiance on the part of the population. Some of the people, principally the Americans, welcomed protection, but many, of foreign birth and extraction, although they dreaded smallpox, accepted it as inevitable, and dreaded vaccination more than the disease. Dr. Scoboria's record makes clear the valiant auxiliary role played by the clergy in skillful vaccination and care of the sick and in proper disposal of the dead.

In the summer or the autumn of 1888, succeeding Dr. E. A. Holmes, who had removed to North St. Paul, Dr. Scoboria settled in Oronoco, Olmsted County, where he had a large practice and where "with his amiable wife he was an addition to the social circle." At an entertainment for the benefit of the school library, it has been noted, Dr. Scoboria and the Reverend M. Cross sang a duet, "Larboard Watch! Ahoy!" In Oronoco, in March, 1890, the doctor was elected justice of the peace, but failed to qualify. A year later he was appointed county physician for the townships of Oronoco, New Haven and Farmington.

Early in July, 1891, Oronoco, again deprived of its only physician, regretted the removal of Dr. Scoboria to Mazeppa, about eight miles north, in Wabasha County. In Mazeppa he remained in active practice into 1896, when he returned to Elk River.

At the fourteenth annual meeting of the Minnesota State Medical Society, at St. Paul, on June 6, 1882, Dr. Scoboria was admitted to membership, and at this meeting, the committee on surgery, reporting on work of the preceding year, credited Dr. Scoboria and Dr. E. C. Spencer with a report of seven surgical cases of different types. On October 29, 1883, under the new Minnesota medical practice act, Dr. Scoboria received certificate No. 186 (R). Soon after his arrival in Oronoco he was elected to membership in the Olmsted County Medical Society; in 1891, then in Mazeppa, to the Wabasha County Medical Society (its president, 1893); and in 1893 to the Southern Minnesota Medical Association.

After his return to Elk River Dr. Scoboria remained there for about ten years. The *Northwestern Lancet* on April 15, 1905, stated that Dr. Scoboria, a well-equipped practitioner, had decided to move to North Yakima, Washington. This physician's name has not been noted in any issue of the directory of the American Medical Association. It is said that his death occurred in Washington.

Edgar T. Sedgwick was graduated on June 20, 1877, from the Bennett College of Eclectic Medicine and Surgery, in Chicago, and shortly afterward began the practice of his profession in Zumbrota, Goodhue County, Minnesota. In October, 1879, he removed to Rochester, Olmsted County, and opened an office in the new Olds and Fishback Block on Broadway, for general practice, with emphasis on treatment, with new remedies, for diseases of the throat and lungs. Early in 1880 he purchased the residence of Judge L. Barber, on College Hill, as a home for his family.

Various newspaper items concerning Dr. Sedgwick's affairs have been noted: The doctor was a worker for temperance, chaplain of the local Loyal League of Temperance. In June, 1880, when Dr. George W. Nichols, county coroner, left Rochester for Dakota Territory, the county commissioners appointed Dr. Sedgwick coroner to fill the vacancy. In June, 1881, he was elected treasurer of the Minnesota State Eclectic Medical Society, at a meeting in St. Paul. He received visits from his brother, Dr. S. R. Sedgwick, of Wheaton, Minnesota, "a professor in one of the medical colleges in Chicago." In the summer of 1881 Dr. E. T. Sedgwick entered partnership with Dr. Joel H. Horton, an eclectic practitioner newly arrived in Rochester. This association was dissolved three months later.

In the early eighties Dakota Territory was drawing many settlers of all occupations from Minnesota, and Dr. Sedgwick, after making several trips of investigation, left with his family for Huron or vicinity in April, 1883. Under the territorial medical practice act of 1885 he registered on February 18, 1886, as of Frankfort, Spink County (South Dakota).

Evidently Dr. Sedgwick returned to Minnesota. In the *Official Register of Physicians of Minnesota* for 1883-1890 he was listed as of Zumbrota, Goodhue County, holder of an exemption certificate under the affidavit clause of the medical practice act of 1887. The issue of 1883-1909 listed him as living but gave no address.

Charles G. Seifert in March, 1879, departed from Rochester, Olmsted County, for Swan Lake, Turner County, Dakota Territory, where he would practice his profession. Other record of this physician has not been found.

Joseph George Skaro (1859-1901?), a native of southern Minnesota, practiced medicine in the community of Rock Dell, Olmsted County for about one year, beginning in the spring of 1882, before settling in Minneapolis. During his residence in Rock Dell, it has been said by an early settler and friend of the local Giere family, Dr. Skaro acted as medical preceptor to Eric O. Giere, who became one of Minnesota's leading physicians and surgeons.

Born in St. Peter, Nicollet County, on January 10, 1859, Joseph G. Skaro was a son of Asgrim (Asbjorn) K. Skaro (1829-1864), who came from Hallingsdals, Norway, to the United States in 1845. Asgrim K. Skaro merits special mention. In 1846 he enlisted in the regular army of the United States and thereafter served in the Mexican, Indian (Minnesota) and Civil Wars. During the Indian War he was stationed at Fort Fairmont, Blue Earth County. Early in the Civil War, then a resident of St. Peter, he organized Company E of the Second Regiment Minnesota Volunteer Infantry and became its captain; he was mustered in on July 5, 1861, and resigned on March 20, 1862. A few months later he organized Company D of the Ninth Regiment Minnesota Volunteer Infantry and served as its captain until his death in line of duty on December 16, 1864, at the Battle of Nashville, Tennessee, with the division of General George Henry Thomas: "In charge of the works Captain Skaro of Company D, a brave and gallant officer was killed. . . . He was a thorough soldier and greatly beloved by his men."

Joseph G. Skaro probably received his early education in the schools of St. Peter and his first medical instruction under a preceptor. There is discrepancy in data as to the year of his graduation from the College of Physicians and Surgeons of Keokuk (Iowa). A directory of physicians, dentists and druggists of Minnesota and Wisconsin (Galen Gonser & Co., Publishers, 1890) gives 1880; the *Official Register of Physicians of Minnesota*, 1883-1890, gives 1883. There is reason to believe that 1880 is correct: It is recorded that for a year prior to his arrival in Rock Dell Dr. Skaro practiced medicine in Pierce County, Wisconsin, and an Olmsted County newspaper fixes the time of his settling in Rock Dell, with his office in the village post office, as March or early April, 1882. He was licensed in Minnesota on October 11, 1883, under the current medical practice act, receiving certificate No. 80 (R).

On March 9, 1883, the *Rochester Post* announced that Dr. Skaro had removed to Minneapolis and was established at 115 Washington Avenue, South. "The community of Rock Dell and vicinity lost in the departure of Dr. Skaro an efficient physician and estimable citizen universally liked and respected by all with whom he came in contact." Subsequently he made occasional visits at Rock Dell. Incidentally, the *Rochester Post* of March 16, 1883, stated that Dr. Skaro's brother, A. Skaro, had accepted a position at the state hospital for insane at St. Peter.

The *Northwestern Lancet* of October 15, 1901, carried the following item: "Dr. J. G. Skaro, who has practiced medicine in Minneapolis since 1880 [*sic*] is seriously ill and it is not expected that he can recover."

For many years there practiced in Minneapolis, at 123 Washington Avenue, South, and later at other addresses, Dr. Alvah K. Skaro (born 1864, graduated from the Louisville Medical College in 1886, licensed in Minnesota in 1886) and Dr. Edwin A. Skaro (graduated from the Minnesota Hospital College in 1887, licensed in the state that year). In 1942 only Dr. Alvah K. Skaro was listed, as of Minnetonka Beach, in the directory of the American Medical Association.

Julius Franklin Slocum (1844-1874), a young physician of promise, served his brief professional career in Marion, Marion Township, Olmsted County, in the early seventies.

One of the eight children of George W. Slocum and Rhoda Mantor Slocum, he was born in Crawford County, Pennsylvania, on February 19, 1844. Ten years later parents and children were to be among the earliest settlers of Mantorville, Dodge County, Minnesota. According to a history of Dodge County, of 1884, the children of the family were: Lucy A. (Mrs. Charles) Gleason, Maysville, New York; Emma Josephine, wife of Dr. Orin W. Sadler, an early physician of Dodge County and Olmsted County and other near-by counties in the seventies; Mary Minerva, Pittsburgh, Pennsylvania; Augusta Eveline (Mrs. Charles H.) Benton, Dodge Center, Minnesota; Samuel Mantor, who became a physician and removed to Idaho; Sara Lida, Maysville, Pennsylvania; Minnie Kate (Mrs. Fred) Bancroft, an adopted daughter, St. Paul; and Julius Franklin. The family were Universalists.

The migrations of the Mantors and the Slocums who were pioneers in Dodge County illustrate well the westward trend of population in the first half of the nineteenth century. The Mantor parents were natives of Albany County, New York, who in 1825 immigrated into Pennsylvania; three of their children were Peter, Riley and Rhoda. The Slocum parents were natives of Providence, Rhode Island, who early in the century removed to Monkton, Addison County, Vermont, and in 1834 to Venango, Crawford County, Pennsylvania, where they opened a farm. The son, George W. Slocum, born on August 23, 1818, in Vermont, became a lumberman in Pennsylvania. He was married on September 20, 1841, to Rhoda C. Mantor. The next trek of these families was initiated by Peter Mantor (who became a captain in the Union Army during the Civil War) and Riley Mantor. In the autumn of 1853 these brothers pioneered into Minnesota Territory and in Dodge County became the founders of Mantorville; early in 1854 they built and began operating the first general store and the first sawmill in the community. In 1854 George and Rhoda Mantor Slocum and their children arrived in Mantorville and settled on a near-by farm which they pre-empted. Mrs. Slocum died in 1865. Mr. Slocum in Dodge County was farmer and real estate dealer, member of the first board of county commissioners, and in due time clerk in the office of the judge of probate; his brother, Henry G. Slocum, also became a well-known citizen of the county.

Julius Franklin Slocum received his early education in the district and the village schools of Mantorville, his academic training, it is believed, at the old seminary at Wasioja, which in his student days was the Northwestern College (a few years later it was the Groveland Academy). Dr. C. E. Bigelow, of Dodge Center, has said, "I believe that I am correct in saying that all of the young men of Dodge County (of that early period) who studied medicine later, attended the seminary." J. F. Slocum when very young was married at Mantorville on April 20, 1861, to Lena M. Green; his wife, born in Vermont, in 1850, came early with her parents into the community of Concord and Mantorville.

It has been stated that Julius Franklin Slocum during the Civil War enlisted from Dodge County and served with the Tenth Regiment Minnesota Volunteer Infantry. In the postwar period he studied medicine, probably under a preceptor, and "was for a time a student at the state university of Michigan, at Ann Arbor."

Sometime in 1871 or 1872 Dr. Slocum settled in Marion, Olmsted County, where, highly esteemed and respected, he ably practiced his profession. In March, 1872, he was appointed county physician for the townships of Elmira, Orion, Marion and Pleasant Grove, at an annual salary of $100; and again in March, 1874, at a salary of $150. In the summer of 1874, when his health was failing rapidly, Dr. Slocum sought benefit at the medicinal springs of Waukesha, Wisconsin. On November 13, 1874, at his home in Marion, he died from tuberculosis and diabetes. Dr. Slocum was a member of the Mantorville Masonic Lodge and he was accorded Masonic funeral rites; more than a hundred Masons, comprising delegations from the lodges of Mantorville, Rochester, Pleasant Grove and Eyota, paid him respect. Services were held at the church in Marion and burial was in the village cemetery.

Dr. Slocum was survived by his wife and his son, Franklin. A few years later Lena Green Slocum was married to Charles Severin Beaulieu, native of France, physician and preacher, who practiced medicine in Concord, Dodge County, from 1878 into 1880. Eckman and Bigelow, in their recent article on early medical practice in Dodge County, included biographical notes on Dr. Beaulieu.

John Van Smith, born about 1828 in Columbus County, New York, came to Minnesota in 1855 and settled not long afterward in section 13, Cascade Township, Olmsted County; his post office was Rochester. In 1865 and 1866 he served as town clerk of Haverhill Township, adjoining Cascade on the east. In the Andreas *Illustrated Historical Atlas of Minnesota,* published in 1874, John V. Smith, of the foregoing address, was listed, "Magnetic and Eclectic Physician." The *Rochester Post* of February 2, 1892, carried the following note: "Dr. J. Van Smith died at Arkansaw, Wisconsin, last week, aged sixty-four years. He died of a complication of diseases, among which was dropsy. Mr. Van Smith was one of the first settlers and left here in 1874." A venerable resident of Rochester has recalled that after this practitioner's death his wife and his son lived north of Rochester on the Lake City road, probably on the original homestead.

Dr. Stewart, a homeopath, was in Byron, Olmsted County, in the early nineties. An elderly citizen of the community has recalled the presence of this practitioner, his personal appearance, his once being called in an emergency, but official record is lacking.

Augustus White Stinchfield (1842-1917), a citizen and physician of outstanding personal and professional merit, practiced medicine in southern Minnesota from 1872 until his death, in two counties and three communities: Dundas, Rice County, from 1872 into 1873; Eyota, Olmsted County, from 1873 into 1892; and Rochester, Olmsted County, from 1892 into 1917.

Born on December 21, 1842, at Phillips, Franklin County, Maine, he was a son of Jacob H. Stinchfield, a farmer, and Jane R. Whitney Stinchfield, both of whom, of English ancestry, were natives of Franklin County. His brothers and sisters were Charles, Lura, Nellie, Eliza (Mrs. Dan Wethern), Abbie, Minnie (Mrs. Henry True) and Clara (Mrs. Bert Richardson); Charles died in military service in the Civil War. The paternal grandfather of these children was Nathan Stinchfield, a citizen of Franklin County, Maine, as was his father, John Stinchfield. The maternal grandfather was Andrew Whitney, a native of Phillips, Maine, who served with the American army in the War of 1812; he was a descendant of Peregrine White, who was the first English child born in America, on the *Mayflower* in Cape Cod Bay.

Augustus W. Stinchfield was educated at the local schools of Phillips and of

Strong, about ten miles away, and at Phillips Academy; at the academy, after graduation, he tutored in mathematics. In 1863 he came west to Wisconsin, where he taught school for a year. In 1864 he enlisted as a private in Company F, Thirty-ninth Wisconsin Regiment of Volunteer Infantry, from which he was honorably discharged, because of illness, after 100 days of service. Thereafter he obtained his medical education: After a year at the Medical College of Maine, of Bowdoin College, he spent a year (1865) at the University of Michigan, and then returned for two years at Bowdoin College, from which he was graduated as a doctor of medicine in 1868.

Returning to the West, Dr. Stinchfield carried on his first medical practice at Verona, Lawrence County, in southwestern Missouri, from 1869 into 1872. In the latter year he settled in Dundas, near Northfield, in Rice County, Minnesota, where he remained a year and a half, until the autumn of 1873, when he removed to Eyota, Olmsted County. Here he succeeded Dr. Charles E. Teel, who was transferring to St. Paul; within a few months Dr. Teel returned to Eyota for a residence of several more years.

In Eyota Dr. Stinchfield for nineteen years practiced medicine of fine and intelligent type and by precept and example gained worthy members for the medical profession. There came under his direct influence, most of them as his students, at least eight young men, all but two of them local boys, who became well-qualified, ethical physicians. Among them were Edgar A. Holmes, Nathaniel S. Lane, Amos L. Baker, Milan J. Hart, Eustis Singleton and Romeo R. Stevenson; the first four long practiced their profession in Minnesota, beginning in Olmsted County.

Augustus W. Stinchfield was married at Eyota on May 1, 1878, to Martha Jane Bear, schoolteacher and native of Olmsted County, third of the eleven children of Mr. and Mrs. Benjamin Bear, who were among the earliest settlers of the county. Mr. Bear was of German-Swiss descent, his wife of English ancestry. To Dr. and Mrs. Stinchfield were born, at Eyota, five children: Nellie M., Charles I., Minnie, Lura and Alice; Charles died when a youth, in a railway accident at Dover. The family home, a roomy frame structure, with veranda, still is in use (1947). Early in his practice Dr. Stinchfield built a brick office building, still standing, at the rear of the Dyar and Ingham Drugstore in the village.

During the period in Missouri and through the years in Eyota Dr. Stinchfield experienced to the full the hardships of weather, roads, clinical emergencies and inadequate equipment which were part of village and rural practice of the time, bringing to all situations humor, kindliness and keen judgment. There are many anecdotes of those decades: One story that he enjoyed was of the first time that he prescribed medicine in capsules; when he next called at the patient's home, a member of the family handed him the empty capsules, saying "Doctor, here are your little bottles." For many years he was county physician for the townships of Quincy, Viola, Dover and Eyota, and health officer for the vicinity of Eyota and the townships of Eyota and Viola. Under the "Diploma Law" of 1883 he was licensed in Minnesota on January 10, 1884, receiving certificate No. 678 (R).

An able student, throughout his professional career devoted to the advance of scientific medicine, Dr. Stinchfield quietly achieved a distinguished reputation as a physician. Shortly after his arrival in Minnesota, in 1872, he became a member of the Minnesota State Medical Society, which from that time he served variously, as contributor of reports and papers, member and chairman of standing committees, corresponding secretary in 1873, and delegate several times to the American Medical Association, in which he was enrolled in 1875. On settling in Olmsted County he became part of the Olmsted County Medical Society and in 1885 was one of those responsible for reorganization of the group as an active component part of the state society; he was the second president of the new county society. In 1892 he was a founder of the Southern Minnesota Medical Association. The published list of his writings includes only a few of his many contributions on varied clinical subjects.

Dr. Stinchfield recognized the value of clinical travel and postgraduate study. Almost annually throughout his active years he made trips east, spending five or six weeks visiting hospitals and medical schools. In 1889 he took a course at the New York Polyclinic Medical School and Hospital. In April, 1891, the Eyota correspondent of the *Rochester Post* stated: "Dr. A. W. Stinchfield and daughter Nellie returned home from Chicago last Wednesday. The doctor went to Chicago to take a polyclinical course in medicine. It is gratifying to the people of Eyota to know that they have a physician who will not permit cobwebs to accumulate on him, but who will keep abreast of the times."

Agreement in concept of the art and science of medicine, together with mutual respect and esteem, led to the close association of Dr. Stinchfield and the Drs. Mayo, father and sons, in Rochester. In February, 1892, accepting the invitation of the Mayos to join them as copartner, Dr. Stinchfield turned over his extension practice to young Dr. Rollo C. Dugan, of Dover, and removed with his family to Rochester. Here his work changed in scope but not in direction. It has been said that at the height of his practice in Eyota Dr. Stinchfield established there a small hospital to meet the local needs, but the statement has not been confirmed. In Rochester, as diagnostician, medical adviser and chief of the medical staff, he became an important factor in the development of St. Mary's Hospital and the Mayo Clinic. Gradually Dr. Stinchfield centered his chief attention on the diagnosis of and treatment for diseases of heart and lungs. In 1906, because of advancing years and changing interests, he retired as partner in the firm of the Drs. Mayo, although he retained his office and continued a limited advisory practice. In his latest years, after his nominal retirement from clinical practice, he devoted considerable time to finance and became a ranking officer in various banks and trust companies in southern Minnesota and in North Dakota.

Dr. Stinchfield's avocations and affiliations show forth the well-rounded character of the man. He found joy in gardening, especially in rose culture, and on early summer mornings would be at work among his flowers. He owned a farm near Eyota where he bred gaited horses; his chief interest in horses, however, although he had one famous pacer, Lebbeus I., who for several seasons won honors on race track circuits, was in always having a spanking team of driving horses for his own use. Every autumn found him in North Dakota when the prairie chicken season opened. He had satisfaction in collecting an excellent library, and enjoyment in committing poetry to memory, particularly the verse of the New England poets, much of which he memorized on his long country rides in the early years. A raconteur of charm, he had a notable collection of stories. He was a member of the Republican Party, of the Custer Post of the Grand Army of the Republic, a sustaining member of the Congregational Church. He joined the local Masonic lodge in 1875, became a director of the order, and a member of the Knights Templar and of the Shrine. As a citizen he was influential in essential civic and cultural movements.

Dr. Augustus White Stinchfield died in Rochester from apoplexy on March 15, 1917, in his seventy-fifth year, survived by Mrs. Stinchfield and four daughters. When Martha Bear Stinchfield died in Rochester on June 29, 1940, she was survived by her daughters, twelve grandchildren and six great-grandchildren. She was a past worthy matron of the Eastern Star; she had been honored as a Delta Gamma Mother, all her daughters and her granddaughters being members of the Delta Gamma sorority. Three of the daughters are married to physicians, one is the wife of an attorney: In 1947 there were living in Rochester, Nellie Stinchfield (Mrs. William F.) Braasch, Lura Stinchfield (Mrs. Henry W.) Meyerding, and Alice Stinchfield (Mrs. Mark W.) Anderson; Minnie Stinchfield (Mrs. Montreville J.) Brown was residing in St. Paul.

There can be no better picture of Dr. Stinchfield as a physician than that given by the Sisters of St. Francis, of St. Mary's Hospital, Rochester, when they wrote of him in 1922: "With the scientific acumen and adaptability for teamwork that characterize the best type of physician in group medicine of today, Dr. Stinchfield combined all the lovable traits of the Doctor of the Old School. He was sympathetic and kindly; his patients were his, no matter how many others helped to take care of them. He was gentle and considerate, and all who came in contact with him felt the charm of his sincere friendliness and high-minded benevolence."

Edwin Dexter Stoddard (1850-1937), member of the regular profession, was a general practitioner of medicine in Olmsted County, Minnesota, from 1875 into 1903, when he retired from practice and removed to California.

Born at Farmington, Franklin County, Maine, on April 3, 1850, he was a son of Nelson Stoddard, who was a farmer, and Mercedes Record Stoddard, and when a child came with his parents and his brothers and sisters, Frank P. and Roscoe, Ellen (Mrs. Bowers) and Emma (Mrs. Cortelyou) to a farm home in Viola Township, Olmsted County. Later the family lived in Rochester, where Nelson Stoddard became a merchant.

Edwin D. Stoddard obtained his early education at the public schools of Rochester and his first medical instruction, after his graduation from high school, from the pioneer physicians, Dr. Edwin C. Cross and his brother Dr. Elisha W. Cross, in whose offices he studied. Thus prepared, he entered the Chicago Medical College, and on March 16, 1875, was graduated with the degree of doctor of medicine. Soon afterward he began in the village and community of High Forest, High Forest Township, a practice that was to continue for nearly thirty years. He possessed the liking and support of the laity and of the medical profession of the county. On occasion he called in consultation the Drs. Cross or the Drs. Mayo and in due time, with the opening of St. Mary's Hospital, at Rochester, he had hospital facilities. Typical local comment in the earlier years at High Forest was, in March, 1883, "They say the doctor hurries a little too much for the state of the roads," and in January, 1889, "Dr. Stoddard would be sick in bed if he had time."

On November 27, 1879, Edwin D. Stoddard was married to Ellen Dodge at the home of Mr. and Mrs. A. K. Knapp, of Rochester. Ellen Dodge, who was born in 1855 at Le Sueur, Minnesota, became in her early childhood a member of the Knapp household, where she grew up as a cherished daughter. Mr. and Mrs. Knapp, pioneer citizens of distinction, came from Vermont to High Forest Township in 1857 and established their first Minnesota home on a farm near Stewartville; Mr. Knapp is credited with having introduced here Holstein-Friesian cattle and Norman-Percheron horses and English carriage horses.

Dr. and Mrs. Stoddard soon after their marriage converted into a beautiful home the dignified building, originally a residence, which for a term of years housed the historic High Forest Seminary.

With the coming of the Winona and Southwestern Railway to Stewartville, that hamlet experienced rapid growth, and in November, 1890, Dr. Stoddard, attracted by the opportunity offered, became the first resident physician of the village. He soon built a handsome home and, in partnership with H. D. Morse and Charles N. Stewart, a business block, and established a drug store in partnership with F. L. Wood. In 1897 Dr. Francis W. Burns, a native son of High Forest Township and a medical graduate of 1896, joined Dr. Stoddard in practice; this association continued until Dr. Stoddard's retirement and removal to California. Dr. Burns in 1901 was married to Mabel Opal Knapp, only daughter of Mr. and Mrs. A. K. Knapp.

For the greater part of his years of practice in Minnesota Dr. Stoddard was county physician for the townships of Rock Dell and High Forest and for the village of High Forest and sometimes for Stewartville. He was licensed on May 7, 1884, under the Minnesota medical practice act of 1883, receiving certificate No. 902 (R). Although record has not appeared that he was a member of the State Medical Society, he was a member of the Olmsted County Medical Society (its vice president in 1891) and of the Southern Minnesota Medical Association. For a time he was local surgeon to the Winona and Southwestern Railway Company. He was a member of the Congregational Church. He traveled extensively in this country and, in his later years, abroad. An early interest in farming and stock raising, in Grant County, Minnesota, led to a lasting interest in real estate and horticulture in California, where his investments resulted in a considerable fortune.

Dr. Edwin D. Stoddard died from cardiac disease on May 26, 1937, in Beverly Hills, California, at the age of eighty-seven years, survived by his wife. There were no children of the marriage. Mrs. Stoddard's death occurred in Beverly Hills on October 9, 1943.

B. F. G. Stone, a native of Jeffersonville, Kentucky, and sometime a resident of Delta, Ohio, came to Rochester, Minnesota, from Kansas in the late autumn of 1860 and established himself with his office over Woodard's drug store and his residence two doors east of the Baptist Church. Having been announced in the press both as an eclectic practitioner and as a homeopathic physician, he stated in correction that he was an "M.D. of the Old School Class." He became a member of the Rochester Masonic Lodge No. 21 (A. F. and A. M.), on the basis of previous membership in Fulton Lodge No. 248 at Delta, Ohio. As a member of the Olmsted County Temperance Society it was said that he spoke "forcibly and well." He moved away from Rochester probably some time in 1861.

(To be continued in the August issue.)

President's Letter

A CHALLENGE TO THE MEDICAL PROFESSION

IMPROVING and, in some cases, expanding medical education in the United States is a challenge which the medical profession of this nation has met with vigorous and constructive leadership. The American Medical Association organized the American Medical Education Fund in December, 1950. On May 16, 1951, a public announcement was made of the establishment of the National Fund for Medical Education. This National Fund for Medical Education is made up of representative groups of American society, including business, industry, agriculture and labor. They have pledged their efforts to raise unrestricted funds for medical education enough to help medical schools solve many of their most serious problems. The objective of the National Fund is to raise annually from various sources substantial funds for the support of the nation's medical schools. This will be on a national level. The American Medical Education Foundation has announced it will merge contributions with those of the National Fund. Contributions received will be distributed to the various medical schools.

The creation of the new aid to medical schools of the country will give the medical education program a new sense of security. Contributions by the individual physicians will be sent to the American Medical Education Foundation. In making his contribution a physician may designate specific schools for his contribution. This is a matter which merits earnest consideration. Federal aid would place our medical schools in danger of Federal control which would sooner or later destroy their freedom.

Those of you who attended the Annual Meeting of the Minnesota Medical Foundation and Minnesota Medical Alumni have had first-hand information as to the various needs of the University of Minnesota Medical School. All were agreed that the medical school program should not be curtailed and that some system of aid should be found. It was felt that expansion should be continued to meet present and future needs. May we expect that the physicians of Minnesota will contribute generously to the American Medical Education Fund.

J. F. Norman

President, Minnesota State Medical Association

◆ Editorial ◆

Carl B. Drake, M.D., *Editor;* George Earl, M.D., Henry L. Ulrich, M.D., *Associate Editors*

AMA JUNE MEETING

TWELVE thousand American doctors can't be wrong when they attend a medical convention. And there were 12,229 doctors and an additional 16,167 guests and others at the annual meeting held at Atlantic City in June. Compare this registration with the 10,241 physicians at the San Francisco meeting last year. Next June the meeting will be in Chicago, in 1953 in New York, and again in San Francisco in 1954. The 1951 Clinical Session will be held in Los Angeles, in Denver in 1952, and in St. Louis in 1953.

Dr. Elmer L. Henderson of Louisville was the retiring president. Those who have followed his pronouncements which have appeared in the AMA *Journal* and elsewhere cannot fail to feel proud of the intelligent way in which he has conducted the affairs of the Association and particularly its public relations. The past year was a crucial one for the medical profession. The proposal to end the private practice of medicine, spearheaded by President Truman and Oscar Ewing, was successfully combatted by the publicity campaign directed by Clem Whitaker and Leone Baxter. Those members of county and state medical societies who backed the AMA campaign with their assessment and membership dollars—and they constitute the great majority of the membership—can justifiably feel proud of their share in saving the profession and perhaps the nation from socialism. The AMA program is not simply one of obstruction to changes in the practice of medicine proposed by socialistic-minded individuals in our government particularly, but, as outlined to the House of Delegates by our retiring President Henderson, includes a positive program for the betterment of the nations health.

Dr. John C. Cline of San Francisco, the new AMA president, in his inaugural address to the House of Delegates which was broadcast to the nation, stated that "no health crisis or medical emergency exists in this country" and told his listeners of the activities and aims of the AMA. Members who heard him must have felt proud to be a part of such a truly American and democratic institution.

The president-elect is Dr. Louis H. Bauer, of Hempstead, New York, who has been chairman of the Board of Trustees and has served in many important capacities in the AMA. In his address to the House of Delegates after the announcement of his election, he warned against relaxation in our efforts to prevent the socialization of our profession, though the threat seems to have been thwarted for the present. It had been planned to dispense with the services of the team of Whitaker and Baxter at the close of the year. Apparently with the feeling in the House of Delegates that the publicity campaign being directed by them should not be entirely abandoned, the team was retained on a half-time basis for 1952.

Dr. Dwight H. Murray of Napa, California, is succeeding Dr. Bauer as chairman of the Board of Trustees. Dr. Walter B. Martin of Norfolk, Virginia, was re-elected to the Board for a five-year term, and Dr. David B. Allman of Atlantic City was elected a member of the Board to fill the three years of Dr. Bauer's unexpired term.

Dr. Allen O. Whipple of New York City, whose contributions to the field of operative surgery have been outstanding, received the Distinguished Service Award of the Association. Major General Harry G. Armstrong, surgeon general of the United States Air Force, who has contributed more than seventy-three scientific papers to the field of aviation medicine, ran Dr. Whipple a close second in the voting of the Delegates.

A conference of presidents and other officers of state medical associations, which has come to be an annual affair on the Sunday preceding the AMA session, consisted this year of four outstanding addresses by: a physician, Dr. W. Andrew Bunten of Cheyenne, Wyoming, past president of the Wyoming State Medical Association; a newspaper editor, Edwin F. Abels, past president of the National Editorial Association and editor of the *Lawrence Outlook* of Lawrence, Kansas; a clergyman, The Most Reverend John J. Wright, Roman Catholic Bishop of Worcester; a legislator, Senator Richard M. Nixon of Whittier, California. If and when the addresses are published, they will provide valuable reading.

HERR CHRISTIAN STOCK

THERE seems to be no limit to the methods used by the proponents of socialized medicine to further the cause. Now Herr Christian Stock, past president of Hesse, one of the five German states in the American zone, is visiting this country as a guest of the American government. This would seem an innocent performance, but Herr Stock was the first German leader to advocate a system of compulsory governmental health insurance for the German people after World War II and almost succeeded. The plan was the objective of the Communists, Socialists and large unions in Germany. Now Herr Stock is travelling in the United States under the auspices of the State Department and is making informal talks in favor of socialized medicine. Not so innocent a visit as it seems! If this is not an example of the use of government funds for propaganda purposes to influence legislation, what is it?

IS THERE A DOCTOR SHORTAGE?

THE QUESTION of whether there is a present shortage of doctors seems to be much in the limelight today. In an article which appeared in the *Saturday Evening Post* for May 26, 1951, Dr. Franklin D. Murphy, dean of the School of Medicine at the University of Kansas, says there is a shortage. He refers to a statement made recently by Dr. Howard A. Rusk, chairman of the Health Resources Committee of the National Security Resources Board, to a group of medical school deans that his committee had calculated the country would need some 210,600 active physicians by 1954, which would be 22,000 more than we would have at the present rate of production.

Paul de Kruif, on the other hand, in an article in the *Reader's Digest* for June, states that the idea that there is a shortage of doctors emanates largely from the Federal Security Agency in Washington and is a false idea.

What is the public to believe?

Here are some of the facts bearing on the question, some of which are brought out by the two articles mentioned.

While there was one doctor per 568 persons in the country in 1909 and one per 760 in 1949, the ratio has remained stationary the past thirty years.

Our country suffered from an over-production of inferior doctors preceding the Flexner report on medical schools in 1910. As an ultimate result of that report, we have only Grade A medical schools today. Better medical education and advance in medical science and hygiene have resulted in the marked improvement in the health of the population. Surely, the health statistics fail to indicate any lack of medical care.

The doctor of today, with modern methods of transportation, can care for several times the number of patients that the horse-and-buggy doctor could. The increased use of hospitals has accomplished the same result. 'Tis true that while there is less disease, the automobile and other mechanizations, have produced a frightful increase in accidents.

The medical schools have recently increased their output of graduates. According to Dr. Stockton Kimball, of the Association of American Medical Colleges, the present medical schools have expanded their output in recent years equivalent to the opening of fifteen new medical schools.

The building of new medical schools is not a thing of the past. A new school in Seattle graduated its first class in 1950. A new one in Los Angeles is in the course of construction. Funds have been appropriated in Jackson, Mississippi, for a new medical school. Funds for the construction of a new medical and dental school at Rutgers have been appropriated. New schools for Connecticut and for Florida have been proposed.

The unequal distribution of physicians accounts for much of the present-day agitation about the presumed shortage. Worthwhile steps are being taken in a number of states to provide doctors for sparsely settled areas. Scholarship funds have been established for the training of doctors from and for rural communities. Local communities in need of a doctor have equipped offices and provided for free rent for a time as inducements to attract a doctor. Some of the western states without medical schools have made arrangements with those that have for the education of their prospective doctors. For instance, students from Wyoming may enter the medical school in Denver, pay the regular tuition of $575 charged a Colorado resident, and the state of Wyoming pays the state of Colorado $2,080, the balance between the cost to Colorado of a year's education and the

(Continued on Page 716)

Medical Economics

Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association
George Earl, M.D., Chairman

HOSPITAL SERVICE SETS ALL-TIME HIGH

American hospital service reached an all-time high during 1950, according to the annual report on hospitals made by the Council on Medical Education and Hospitals of the American Medical Association.

The biggest increase in the number of patients admitted came from the non-governmental hospitals, where the increase amounted to 304,955. The report compared the figures for 1949 and 1950, stating that the total patients admitted in 1950 was 17,023,513, while that of 1949 was 16,659,973.

It is interesting to note that although the non-governmental hospitals had only 29 per cent of the bed capacity, they accounted for nearly 75 per cent of the total admissions. The general hospitals, with a bed capacity of 587,917, or 40 per cent of the total, provided service for the most people—93 per cent of all patients admitted. The average daily census of these hospitals was nearly 35 per cent of the patient load of all hospitals.

EWING SANCTIONS MEDICAL PROGRESS!

Federal Security Administrator Oscar Ewing must believe in the campaign strategy, "If you can't beat 'em, join 'em," for he said recently, "We have made great strides in the past fifty years in reducing the toll of disease. The average child born this year can look forward to about twenty years longer life than one born in 1900."

It is possible that Oscar Ewing, realizing on which side his political bread is buttered, would like to claim some small share of the credit for medical progress—on what authority, it is quite impossible to tell. If such is the case, his methods are much too obvious, for the above comment was made after he had spent considerable time criticizing the terrible deficiencies of medical care.

A recent editorial in the *Saturday Evening Post* candidly wonders just who Oscar Ewing meant by his use of the above word "we." The editorial comments:

> "Surely not the denizens of the nefarious system of private medical care which he has just been telling off as definitely no good! Or are 'we' the politicians and bureaucrats who have been urging the country to give up a system which has prolonged human life by twenty years in exchange for something which up to now hasn't done much more than make human life not worth prolonging?"

Continuing along the same vein, the *Post* quotes misuse by Oscar Ewing of still another pronoun:

> "And that floating 'we' isn't the only pronoun that Oscar kicks around. A little later in the article for the AFL house organ he explains that 'it' has 'provided Federal funds to help states and communities build new hospitals and health centers.' If you think 'it' refers to the taxpayer, who really does provide the fund, you're wrong. By 'it' Oscar meant the Hospital Survey and Construction Act. Naturally."

MEDICAL LEADER RAPS "FELLOW THINKERS"

Comparing proponents of socialism and those who have even mild socialistic leanings, to the "fellow-travelers" of the Communist camp, Dr. Ernest E. Irons declared that these socialist "fellow-thinkers" are equally dangerous to American Freedom. Dr. Irons, former president of the American Medical Association, spoke recently at the annual meeting of the Illinois State Medical Society.

Dr. Irons stated that socialist fellow-thinkers are those "more gullible intellectuals" who become trapped by the "liberalism" tag on proposals for the socialization, first of medicine, then of the United States. He said:

> "Following the well-known pattern of Marxism, socialist propagandists gathered about them a company of people, some of whom had acquired prominence in their own fields of science or letters, but had little real knowledge of the fundamentals of economics, or government. . . . Socialism acquired its fellow-thinkers as Communism had its fellow travelers. . . .
>
> "While they profess to be liberal in viewpoints, they

are actually being gullible. They do not intend to be unpatriotic, but their actions appear to belie their plea of patriotism."

Medicine Spearheads Fight

Dr. Irons emphasized the importance of continuing the fight against the inroads of socialism, not only in medicine, but in any phase of life where it could appear. He reminded Americans that "Medicine, the first sector attacked, unexpectedly fought back instead of surrendering, and now has become the spearhead of the citizens' fight to avoid Socialist encirclement."

For those who still think that America cannot escape bureaucratic domination leading to enslaving controls, Dr. Irons said, "Such faint hearts need only recall the period of 1840-1860 when other good people doubted the possibility of abolishing physical human slavery and preserving the Union." Similar stoutheartedness is necessary yet, he said, and continued:

> "Bureaucratic and socialistic enslavement of the individual can and will be overcome just as surely, but only by a return to fundamental moral and economic principles.
>
> "Then we shall have more national self-respect; more general respect for our Constitution and for the freedom which it provides. Then we can more effectively oppose the evil forces of socialism in its several forms, whose false prophets have brought nations, small and large, to this present critical pass. Then can we successfully assist the forces of humanity and righteousness throughout the nations of the world to relieve misery and to regain their own self-respect and their respect for the dignity and liberty of the individual citizens."

COMMITTEE HITS AMA SPENDING

The vituperative Committee for the Nation's Health, working with underhanded vigor for the Administration's socialistic compulsory health insurance scheme, has again felt the need to shout out against American medicine's hard-hitting health education campaign.

Apparently feeling the brunt of the campaign's effects, the Committee, in a recent bulletin, whined its objection to the fine work of the American Medical Association's National Education Campaign in promoting the voluntary way in American life.

Analyzing what it calls the "AMA quarterly lobbying reports," the Committee compared what American doctors spent to help defeat the threat of socialism, with what the Committee itself spent to foster Truman's National Health Program. It reported that the Committee spent less than 1.5 cents against each AMA dollar.

The Committee seems to forget that, beside what it spent to support socialized medicine, the vast governmental facilities of Oscar Ewing's Federal Security Agency were used to distribute material for compulsory health insurance.

The Committee also heralds the fact that "*no* tie-in advertising whatever appeared in *The New York Times, Boston Herald,* or *Madison Capital Times.* Of the 65,250 tie-in advertisers, one-third were local business firms such as druggists, surgical supply houses, and others selling services or goods related to health care. Their advertising, for the most part, appeared in smalltown papers."

Apparently the Committee has missed the point of the entire National Education Campaign—to reach the smalltown folks, to let them know the facts about voluntary health insurance and government controls. The Committee was so busy trying to combat this positive approach to the situation that it did not realize how well the campaign had worked, or how successfully it had done its intended job.

MODERN MEDICINE NO FOUNTAIN OF YOUTH

The very thing that has characterized modern medical progress is the thing which gives it considerable difficulty—the provision of additional years of life. Dr. Frank Dickinson of the American Medical Association's Bureau of Economic Research, discussed this problem in an address before the American College of Physicians. He felt that some of the proposed legislation in the medical health field seeks to force the physician to deliver something which cannot be obtained.

Cannot Produce Miracles

In relating the many benefits of longer life, Dr. Dickinson stated that it is important to realize that although scientific experiment and study enable constant advances in medicine, the modern doctor should not be expected to produce miracles. Dr. Dickinson said:

> "The very respect which the physician has gained is today endangered. . . . To the family of the dying man, there is no adequate medical care. We can get enough bread, enough rest, enough excitement at any one time; but we cannot get enough of life. The doctor can save few accident victims who are dying. Yet because he cannot perform miracles, the doctor has been attacked as not fulfilling his duties. The increases in deaths from heart disease and cancer are

pointed to as evidence of his failure. The public does not consider that the deaths due to these older diseases are as different from deaths due to other diseases as a worn-out tire is different from a blown-out tire. The phyisician is forever denied an ultimate triumph. If his patient does not die today, he will die in 20 years, or 30. But the public, refusing to recognize this, demands legislation which will *make* the physician provide the Fountain of Youth."

THE MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

230 Lowry Medical Arts Building
Saint Paul 2, Minnesota

Julian F. Du Bois, M.D., Secretary

ST. PAUL WOMAN PLACED ON PROBATION FOLLOWING SIX-MONTH JAIL TERM

Re. State of Minnesota vs. Helen A. Heck

On April 6, 1951, Helen A. Heck, forty-three years of age, 809 Iglehart Avenue, Saint Paul, Minnesota, was placed on probation by Judge Gustavus Loevinger in the District Court of Ramsey County. The probation is to cover a maximum period of eight years, following a plea of guilty on September 19, 1950, by the defendant to an information charging her with the crime of abortion, and a prior conviction in 1947, for a similar offense. The defendant served six months in the Ramsey County Jail prior to April 6, 1951, in connection with the present case.

The defendant, who holds no license to practice any form of healing, was arrested by Saint Paul police officers in September, 1950, following the hospitalization of a twenty-two-year-old Minneapolis divorcee who was suffering from an infection following a criminal abortion. The investigation also disclosed that the defendant had attempted an abortion on a second patient. The Court was advised that the defendant received $265 for her services in the Minneapolis case and $425 for her services in the second case. The abortion equipment consisting of a speculum, fourteen rubber catheters and other medicinal preparations were found in the apartment of the defendant.

MINNEAPOLIS MAN SENTENCED FOR CRIMINAL ABORTION

Re. State of Minnesota vs. Claude E. Warfield

On May 28, 1951, Claude E. Warfield, fifty-five years of age, Apartment 207, 1419 First Avenue South, Minneapolis, was sentenced to a term of not to exceed four years in the State Prison at Stillwater, by the Hon. Paul S. Carroll, Judge of the District Court of Hennepin County. Warfield had previously entered a plea of guilty on April 19, 1951, to an information charging him with the crime of abortion. Because the defendant allegedly suffers from a serious heart condition, Judge Carroll stayed the sentence and placed the defendant on probation for two years. However, Judge Carroll warned the defendant that if he again got into the abortion racket, or attempted to practice healing in any manner, he would have to serve his sentence irrespective of the condition of his health.

Warfield, who represented himself as "Dr. Warner," was arrested by Minneapolis Police officers on April 10, 1951, following an investigation made by them and a representative of the Minnesota State Board of Medical Examiners. That investigation disclosed that Warfield had performed an abortion by means of a catheter on a twenty-eight-year-old unmarried Minneapolis woman. Warfield received $250 for his services. The patient had been referred to Warfield by one Gustave Carl Ekstrom, fifty-eight years of age, 2306 W. 52nd Street, Minneapolis, who represents himself as an astrologer. A signed statement was obtained from Ekstrom in which he admitted that he had furnished the patient with Warfield's name. Ekstrom also admitted that he received $50.00 from Warfield. Ekstrom also admitted that in May, 1950, he had sent a sister of the patient to the defendant for an abortion. Warfield admitted that he also performed that abortion. Warfield has worked at various jobs but holds no license to practice any form of healing in Minnesota nor elsewhere.

ACUTE ABDOMINAL CONDITIONS

Gynecologic Aspects

(Continued from Page 665)

quently is difficult and has not proved to be highly accurate.

Accurate diagnosis of these conditions often can be made only by opening the abdominal cavity.

A careful effort should be made to arrive at a correct diagnosis because some conditions, namely, ectopic pregnancy, bleeding from a ruptured corpus luteum cyst, twisting of the pedicle of an ovarian cyst, and necrosis of a myoma of the uterus, require surgical treatment, while other conditions, namely, acute salpingitis, bleeding from a corpus hemorrhagicum, threatened abortion, and acute parametritis, should be treated medically.

The signs and symptoms of the more frequent of these conditions and some points of differential diagnosis have been discussed.

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Minnesota State Medical Association

HOUSE OF DELEGATES—SUMMARY OF PROCEEDINGS

Rochester Session—April 30, May 1 and 2, 1951

First Meeting, Sunday, April 29, 1951

Cafe, Hotel Kahler

Rochester, Minnesota

The Ninety-eighth Annual Session of the House of Delegates of the Minnesota State Medical Association was held in the Cafe, Hotel Kahler, Rochester, Minnesota, beginning at 2 p.m., Dr. C. G. Sheppard, Hutchinson, Speaker, presiding.

Dr. Sheppard called the meeting to order. After approval of the minutes of the 1950 session, Dr. Sheppard introduced Dr. R. L. MacCornack, Whitehall, Wisconsin, Speaker of the House of Delegates of the Wisconsin State Medical Association; and Justice Frank Gallagher, Waseca, Minnesota, who spoke briefly to the House.

Dr. R. L. J. Kennedy read the report of the Finance Committee, which noted that the slight decrease in net worth of the Association was due to decreased membership and increased general costs. The Finance Committee's report was accepted.

Dr. Sheppard then called for the reports of the Reference Committees. Dr. C. W. Moberg of Detroit Lakes reported on the Medical Education Reports.

Medical Education Reports

Dr. Moberg: The Committee on Medical Education Reports met in the Hotel Kahler on April 29, 1951. All members were present. The following reports were considered:

Committee on Cancer—A. H. Wells, M.D., Duluth, Chairman
Committee on Conservation of Hearing—L. R. Boies, M.D., Minneapolis, Chairman
Committee on First Aid and Red Cross—John S. Lundy, M.D., Rochester, Chairman
Heart Committee—F. J. Hirschboeck, M.D., Duluth, Chairman
Committee on Hospitals and Medical Education—H. S. Diehl, M.D., Minneapolis, Chairman.
Committee on Public Health Nursing—Mario Fisher, M.D., Duluth, Chairman
Committee on Syphilis and Social Diseases—P. A. O'Leary, M.D., Rochester, Chairman.
Committee on Tuberculosis—J. A. Myers, M.D., Minneapolis, Chairman
Committee on Vaccination and Immunization—R. N. Barr, M.D., St. Paul, Chairman.

The Committee accepted these reports with the following recommendations and comments: that the program of cancer education be continued in a manner which is most feasible and which seems proper to the Cancer Committee; that the House of Delegates approve in principle the plan of the Committee on First Aid and Red Cross for treatment of shock and intravenous measures in the event of major disaster, leaving the working out of details to the Committee; that the plan of the Committee on Tuberculosis for the control of the disease among displaced persons be approved by the House of Delegates.

The House of Delegates accepted the Report of the Reference Committee on Medical Education Reports as a whole.

Dr. Sheppard then called for the report of the Reference Committee on Miscellaneous Scientific Reports, Dr. L. E. Steiner, Albert Lea, Chairman.

Miscellaneous Scientific Reports

Dr. Steiner: The Reference Committee for Miscellaneous Scientific Reports met on the Mezzanine of the Hotel Kahler on April 29, 1951, and considered the following reports:

Committee on Anesthesiology—R. C. Adams, M.D., Rochester, Chairman
Committee on Child Health—G. B. Logan, M.D., Rochester, Chairman
Committee on Diabetes—J. R. Meade, M.D., St. Paul, Chairman
Committee on Fractures—E. T. Evans, M.D., Minneapolis, Chairman
Committee on General Practice—R. H. Creighton, M.D., Minneapolis, Chairman
Historical Committee—Robert Rosenthal, M.D., St. Paul, Chairman.
Committee on Industrial Health—L. S. Arling, M.D., Minneapolis, Chairman
Committee on Maternal Health—J. J. Swendson, M.D., St. Paul, Chairman
Committee on Medical Testimony—E. M. Hammes, Sr., M.D., St. Paul, Chairman
Committee on Military Affairs—J. H. Tillisch, M.D., Rochester, Chairman
Committee on Nervous and Mental Diseases—W. P. Gardner, M.D., St. Paul, Chairman
Committee on Ophthalmology—T. R. Fritsche, M.D., New Ulm, Chairman
Committee on Public Health Education—F. J. Elias, M.D., Duluth, Chairman
Committee on Radio—R. M. Burns, M.D., St. Paul, Chairman
Speakers Bureau—H. M. Carryer, M.D., Rochester, Chairman
Editorial Committee—C. B. Drake, M.D., St. Paul, Chairman

The Committee approved the reports with the following recommendations and comments: that the Committee on Anesthesiology consider arranging for or sponsoring a training program for nurse anesthetists in Minnesota to help alleviate the reported shortage; that the problems inherent in the "Askov plan" be referred back to the Committee on Child Health or discussed by the House of Delegates; that one-day refresher courses on orthopedics and allied subjects, as suggested by the Committee on Fractures, be correlated through the Uni-

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In accordance with action by the Council of the Minnesota State Medical Association in 1944, publication of the proceedings of the House of Delegates is limited to summary.

versity of Minnesota Continuation Center; also that the Fracture Committee's suggestion to change the Red Cross First Aid courses to the eighth grade level be considered impractical; that the Minnesota State Medical Association owes a vote of thanks to the members of the Committee on Public Health Education for their efforts in the battle against socialized medicine.

The House of Delegates accepted the report of the Reference Committee on Miscellaneous Scientific Reports.

Dr. Sheppard then called for the Medical Economics Reports, Dr. Ralph Creighton, Minneapolis, Chairman.

Medical Economics Reports

Dr. Creighton: The Reference Committee for the Medical Economics Reports met in the Windsor Room, Hotel Kahler, April 29, 1951. The Committee considered the following reports:

Editing and Publishing Committee—E. M. Hammes, Sr., M.D., St. Paul, Chairman
Committee on Interprofessional Relations—W. P. Gardner, M.D., St. Paul, Chairman
Medical Advisory Committee—W. H. Hengstler, M.D., St. Paul, Chairman
Committee on Medical Economics—George Earl, M.D., St. Paul, Chairman
Committee on Medical Ethics—R. D. Mussey, M.D., Rochester, Chairman
Committee on Public Policy—R. F. Erickson, M.D., Minneapolis, Chairman
Committee on University Relations—E. M. Hammes, Sr., M.D., St. Paul, Chairman

The Committee accepted all the reports with the following suggestions and comments: that the nursing profession should attempt to integrate the nursing educational system so that the University with its 5-year course shall train and encourage girls to become instructors and teachers on the faculty of nursing schools; that we encourage the formation of more 3-year schools, the graduates of which to become the charge nurses and head nurses; that immediate efforts be made to establish more practical nursing schools so that these girls might do many of the less skilled tasks in a hospital; and that the continued training of nurse anesthetists be encouraged, as well as that of medical technicians; that a minimum of malpractice occurred in the state, and that members of the Association keep in mind that the Medical Advisory Committee stands ready to aid in the event that they are threatened with a malpractice suit.

The House of Delegates accepted the report as a whole after hearing a separate report from Dr. R. F. Erickson, Chairman of the Committee on Public Policy, and a supplementary report by Dr. George Earl, chairman of the Committee on Medical Economics.

Dr. Sheppard then called on Dr. O. J. Campbell, Chairman of the Council, to present the report of the Council.

Report of the Council

Dr. Campbell: The first meeting of the Council of the Minnesota State Medical Association was held on April 28, 1951 at 2 p.m. in the University Club of the Hotel Kahler, for transaction of routine business. The minutes of the previous meeting of the Council held on March 4, 1951, were approved.

. . . the following applications for Temporary Affiliate Memberships were approved: Dr. Arthur R. Andrejek, Minneapolis; Dr. Bradley W. Kusske, New Ulm; Dr. Ernest S. Palmerton, Minneapolis; Dr. Maynard M. Cohen, Minneapolis.

. . . the following applications for Affiliate Membership were approved: Dr. Adam R. Blakey, Osakis; Dr. Theodore Satersmoen, Fosston; Dr. Albert J. Wentworth, Mankato.

. . . the following applications for Life Membership were approved: Dr. A. Dair Haskell, Alexandria; Dr. Arnold E. Johnson, Minneapolis; Dr. Hans Johnson, Kerkhoven; Dr. Victor I. Miller, Mankato; Dr. Fletcher W. Penhall, Willmar; Dr. Matthias L. Ransom, Hancock; Dr. James A. Sanford, Savage.

A delegation of the Minnesota State Dental Association appeared before the Council to discuss possibility of Blue Shield coverage of certain services. It was decided that no action be taken, but that the views of the dentists should be presented to Blue Shield so that they may be fully aware of those views.

The Council voted to recommend to the House of Delegates that a rural medical student scholarship plan be approved, such plan to provide $1,000 a year to a selected rural medical student in return for his agreement to practice in a rural community or town for five years. Further details of the plan would be worked out by the Committee on University Relations.

The Council voted that a communication be directed to the Blue Cross Board of Directors pointing out the advantage to be derived from having a member of the medical profession serving on the Blue Cross Board. Such medical representation would be helpful in transmitting and interpreting to Blue Cross the medical profession's reaction to Blue Cross policy developments.

. . . the Council voted to request the House of Delegates to instruct the American Medical Association Delegates to urge that the American College of Surgeons, the American Medical Association, or the two in conjunction, continue the Hospital Standardization Program.

. . . the Council voted to submit a list of nominees to Dr. F. F. Callahan, Chief of the Medical Service Unit, Division of Social Welfare, to serve on the State Medical Advisory Committee to the Division of Social Welfare.

. . . the Council voted to recommend to the House of Delegates that there be a single classification of American Medical Association membership and that the Delegates transmit this recommendation to the American Medical Association.

. . . the Council voted to recommend to the House of Delegates that the American Medical Association Delegates be instructed to introduce a resolution at the next American Medical Association meeting, under terms of which the American Medical Association would accept the 1951 dues regardless of payment of 1950 dues.

The Council referred a request for a statement of attitude of the Association on an amendment to the Pure Food and Drug Act permitting ice cream and carbonated and still beverages to be sweetened with saccharin, to its committee on Diabetes, empowering it to act with the advice of the legal counsel.

. . . the Council voted to request authorization from the House of Delegates to propose a resolution to be introduced at the American Medical Association's annual meeting for a standardized form for reporting health and accident insurance.

. . . the Council instructed the executive secretary to inform applicants for Life Membership that, under the group arrangement, they surrender their group life insurance when they become life members.

. . . the Chairman of the Council was delegated to appoint a committee of three, from the Council, to study the trend of the scientific program of the Minnesota State Medical Association annual meeting, and the influence lectureships have on them.

The report of the Council was accepted as a whole after separate discussion of the rural medical student scholarship, single membership classification of American Medical Association members, disregarding payment of 1950 AMA dues, proposal to have a standardized form for reporting health and accident insurance, and the composition of the annual meeting program of the Association.

Dr. Sheppard then called for the report of the Reference Committee on Miscellaneous Medical Economics Reports, Dr. E. J. Kaufman, Appleton, Chairman.

Miscellaneous Medical Economics Reports

Dr. Kaufman: The Reference Committee for Miscellaneous Medical Economics Reports met in Room 318, Hotel Kahler, April 29, 1951. The Committee considered the following reports:

Insurance Liaison Committee—A. W. Adson, M.D., Rochester, Chairman

Committee on Medical Service—A. W. Adson, M.D., Rochester, Chairman

Committee on Rural Medical Service—Paul C. Leck, M.D., Austin, Chairman

Committee on State Health Relations—C. E. Proshek, M.D., Minneapolis, Chairman

Committee on Veterans Medical Service—R. H. Creighton, M.D., Minneapolis, Chairman

The Committee accepted the reports with the following suggestions: that state high school athletic insurance policies provide more benefits in the cases of injuries requiring major surgery or more than two weeks' hospitalization; that rural anesthesia, pathology and x-ray facilities be improved; that each delegate do what he can to promote an increase in medical coroners, and that all such coroners have deputies who are also physicians.

The report was accepted by the House and the Speaker called for the report of the Officers and Councilors, Dr. P. J. Pankratz, Mountain Lake, Chairman.

Officers' and Councilors' Report

Dr. Pankratz: The Reference Committee for Officers' and Councilors' Reports met in the University Club, Hotel Kahler, April 29, 1951, and the following reports were discussed:

Secretary's and Executive Secretary's Report, Councilor Reports from Districts One through Nine.

The report of the Chairman of the Council was accepted, with the recommendation that the duties of the permanent Committee on Hospitals and Professional Relations be understood to include the problem of proper work relationships between the general practitioner and other medical specialties.

The reports of the Councilors were accepted, with the following recommendations: that the Councilor, during the course of the year, pay at least one visit to the societies of his district; that the problem of Blue Cross payments and hospital costs be studied closely by the state society; that continuous effort to interest young people in nursing, physical therapy and laboratory technology be made through the Auxiliary and physicians' contacts; we commend the diabetic survey and recommend the sponsoring of surveys patterned after the Minneapolis or Virginia survey in other communities; that the study of civil defense be carried out and be stressed on the local level.

The House of Delegates accepted the report as a whole and adjourned at 6:30 p.m.

Second Meeting, Sunday, April 29, 1951

Cafe, Hotel Kahler

Rochester, Minnesota

The meeting of the House of Delegates of the Minnesota State Medical Association reconvened in the Cafe of the Hotel Kahler, Rochester, Minnesota, at 8 p.m., with Dr. Sheppard presiding.

Dr. Sheppard introduced Dr. J. P. Sanders, Shreveport, Louisiana, president of the Academy of General Practice, Vice Speaker of the Louisiana House of Delegates and past president of the Shreveport Medical Society, who brought greetings from his state.

The next order of business was the report of Dr. F. F. Callahan of the Division of Social Welfare, who presented a short résumé of related legislation coming out of the 1951 Minnesota legislature.

Dr. Sheppard then called on Dr. J. S. McCartney for the report from the Minnesota State Board of Basic Sciences. Dr. McCartney reported that a total of 740 persons took the basic science examinations during the past year. A total of 491 basic science certificates were issued since May 22, 1950, the majority by examination, some by reciprocity.

The House accepted the report of Dr. McCartney and Dr. Sheppard called for the report of the State Board of Medical Examiners, which was approved also.

Dr. Sheppard then called on Dr. A. J. Chesley who gave the report of the Minnesota Department of Health. He gave a brief statement on the Civil Defense program in Minnesota.

The Speaker then called for the balance of the report of the Council, given by Dr. Campbell, chairman.

The Council agreed to foster a plan, to be worked out by the Committee on Child Health, to help, under the adoption laws of the state, to educate members of the Association to the consequences of fostering unauthorized placements of children.

The Council voted to ask the House of Delegates for authorization to develop a committee, composed of members from the Child Health Committee and Maternal Health Committee, to study the Emergency Maternal and Infant Care plans presented to Congress, and the data and reports sent in by the American Medical Association's Council on Medical Service, and to decide whether an amendment to the act would be advisable.

The Council was informed of the passage of S. F. 1376 in the state legislature, which defines and regulates the practice of physical therapists by the State Board of Medical Examiners. The act provides further that the Council of the Minnesota State Medical Association shall recommend to the governor three doctors of medicine qualified to serve on a state examining committee and from this list of persons so recommended, the Governor may appoint one doctor of medicine to the committee. The names submitted shall be duly licensed and registered doctors of medicine in the general practice of medicine.

The Council voted to empower the Chairman to submit the names of three such physicians and to seek advice from sources interested in this legislation, and further, that the Chairman suggest to the Minnesota State Board of Medical Examiners the names of two professors or associates or assistant professors qualified to serve on said state examining committee, from which one may be appointed to the examining committee.

The Council voted to request from the House, authorization to have a committee investigate available group health and accident plans for members of the association and report to the next meeting of the House of Delegates. After brief discussion, the House voted to grant authorization.

The Council referred to its committee on Revision of the Constitution and By-Laws, the request that provisions be made for a special membership classification on the state level similar to that of the Service Fellowship of the American Medical Association, requesting the committee to contact the AMA, seeking advice on establishing such a classification.

On Council recommendation, the House accepted the continuation of policy regarding life membership and eligibility to membership in the "Fifty Club"—life members are eligible, but affiliate members are not.

Dr. Campbell then read the proposed changes in the By-Laws of the Association, which were introduced and which, according to the Constitution, must be laid over until the next day for consideration:

> "The Council recommends that Chapter III of the By-Laws be amended by the addition of a new section as follows:
>
> 'Sect. 4. At least one month in advance of the Annual Session of the House of Delegates, the elected delegates in each Councilor District, for which district a councilor is to be elected, shall hold a caucus at which caucus the said delegates shall select a nominee for the office of councilor, and the name of such nominee shall be submitted to the House for its consideration. Other nominations for such office may be made from the floor at the Annual Session of the House.'
>
> "The Council recommends that Chapter II of the By-Laws be amended by the addition of a new section, as follows:
>
> 'Sect. 8. The Speaker shall appoint a Nominating Committee of nine elected members of the House, being one from each of the nine councilor districts. The Speaker shall also serve as an ex-officio member without the right to vote.
>
> 'The said Nominating Committee shall select one qualified nominee for each of the following offices and submit the names of such nominees to the House for its consideration, to wit: President, First Vice-President, Second Vice-President, Secretary, Treasurer, Speaker, Vice-Speaker.
>
> 'Other nominations may be made from the floor at the Annual Session of the House.'
>
> "The Council recommends that Chapter I, Section 5 of the By-Laws be amended by striking all of said Section 5 and inserting, in lieu thereof, the following:
>
> 'Section 5. Affiliate Members. Affiliate members shall be (1) those members of component societies who because of disability are unable to engage in the active practice of medicine, or (2) those members who have retired from the active practice of medicine, but had been active members at the time they applied for such affiliate membership, or (3) those persons who are engaged in an internship or residency program approved by the Council on Medical Education and Hospitals of the American Medical Association. Provided, however, that such members shall have been declared an affiliate member of such component society at its regular meeting, such action having been approved by the Council; and provided, further, that such affiliate membership shall cease and active membership shall be instituted (1) upon termination of disability, or (2) upon resumption of active practice, or (3) upon termination of participation in graduate study or work.
>
> 'Affiliate members shall not pay dues and shall not have the right to vote or to hold office.'"

The Council also recommended a change in the Constitution and a contingent By-Law change which would be required to be held over until the 1952 meeting of the House of Delegates:

> "The Council respectfully suggests to the House that Article VI of the Constitution be amended by striking the third sentence thereof and inserting in lieu thereof the following:
>
> 'The Council shall consist of the councilors and ex-officio, without the right to vote, the President, the First Vice-President, the President-Elect, the immediate Past President, the Secretary, the Treasurer, the Speaker of the House of Delegates, and the elected delegates to the American Medical Association.'
>
> "The Council further suggests that, if and when such amendment is adopted, that Chapter V, Section 1, of the By-Laws, be amended by striking the second sentence thereof and inserting, in lieu thereof, the following:
>
> 'The Council shall consist of the councilors and ex-officio, without the right to vote, the President, the First Vice-President, the President-Elect, the immediate Past President, the Secretary, the Treasurer, the Speaker of the House of Delegates, and the elected delegates to the American Medical Association.'
>
> "The Council recommends that Chapter V, Section 5 of the By-Laws be amended by adding the following at the end thereof:
>
> 'The Council may, by majority vote of the elected councilors present, go into executive session, such executive session to include only the elected councilors.'"

The House of Delegates accepted the supplementary report of the Council as a whole.

The House voted, after considerable discussion, to table the proposed motion to require membership in the American Medical Association for eligibility to membership in the state or county medical society.

The Speaker then called for the reading of the Necrology Report which was read by Dr. Hirshboeck. A moment of silence was observed.

The Speaker adjourned the House at 11:30 p.m.

Third Meeting, Monday, April 30, 1951

Cafe, Hotel Kahler

Rochester, Minnesota

The House of Delegates reconvened at 1:30 p.m., with Speaker C. G. Sheppard, presiding.

The Speaker introduced Dr. L. W. Larson, president of the North Dakota Medical Association and a member of the Board of Trustees of the American Medical Association, who brought greetings.

Dr. Sheppard introduced Dr. A. W. Adson, Rochester, who introduced Dr. John W. Cline, president-elect of the American Medical Association. Dr. Cline outlined to the House of Delegates the objectives and the accomplishments of the National Education Campaign and other facets of American Medical Association activities.

Dr. Sheppard called on Dr. Campbell to reread the proposed amendment to the By-Laws. All were passed by the House of Delegates.

The Speaker then called for the report of the Resolutions Committee, Dr. A. E. Brown, Rochester, Chairman.

Resolutions Committee Report

WHEREAS, there has been misunderstanding regarding the transition of the $25 payment to the American Medical Association, from the category of "special assessment" to "annual dues," and

WHEREAS, many physicians who did not remit their 1950 dues and who now wish to become members and pay their 1951 dues, have been classified as delinquent members and can no longer be members of the American Medical Association until their 1950 dues have been paid, and

WHEREAS, many physicians were aware that the special assessment in 1949 was not considered legally binding and, therefore, considered the same to hold true of the 1950 payment,

THEREFORE, BE IT RESOLVED that the American Medical Association reconsider its decision of December, 1949, and accept payment of 1951 dues, regardless of the payment or nonpayment of 1950 dues.

* * *

WHEREAS, the hospital standardization program carried on by the American College of Surgeons is and should be continued by physicians, rather than by lay organizations, such as the American Hospital Association, and

WHEREAS, the American College of Surgeons has indicated its inability to carry on this program, unassisted, and

WHEREAS, the American Medical Association comprises and represents the American medical profession.

THEREFORE BE IT RESOLVED that the American Medical Association singly, or in combination with the American College of Surgeons, continue and maintain the hospital standardization program in its traditional form.

* * *

WHEREAS, reporting health and accident cases to insurance companies could be simplified and expedited by one standard form, adopted by all insurance companies concerned with this form of coverage, and

WHEREAS, the advantages of a single form would also increase the efficacy of procedures under the Workmen's Compensation Law,

THEREFORE BE IT RESOLVED that the problem of eliminating diversity of insurance reporting forms be referred to the proper committee of the American Medical Association, with instructions to create a standardized form for reporting health and accident cases.

* * *

WHEREAS, the new system of American Medical Association membership would appear to make the classification of "fellow" an outmoded and unnecessary one, and

WHEREAS, many active members of the American Medical Association feel that no purpose is served by requiring the payment of an extra $5 for the privilege of program participation, serving in the House of Delegates or as an official of the A.M.A., and

WHEREAS, the present membership stratum is inconsistent with the democratic foundation and objectives of the A.M.A.,

THEREFORE BE IT RESOLVED that the American Medical Association establish a single member classification, providing all active members with equal rights and privileges.

RESOLVED, that the House of Delegates of the Minnesota State Medical Association make a repeated study of the Practical Nurse situation in Minnesota with action advising a separate licensing board for practical nurses and measures which would produce a greater number of licensed schools for practical nurses in Minnesota, and that further consideration be given, and measures be instituted to provide a more plentiful supply of x-ray technicians, medical technicians and nurse anesthetists for Minnesota.

* * *

WHEREAS, the present shortages of medical manpower are largely confined to areas needing men in general practice, and

WHEREAS, the Medical School of the University of Minnesota is heavily supported by tax funds, and

WHEREAS, in other states a system of preceptorship during the senior year of medical school, during which the student works with and observes the activity of men in general practice, has proven of great value,

THEREFORE BE IT RESOLVED that the House of Delegates of the Minnesota State Medical Association go on record as strongly recommending such action by the University of Minnesota.

* * *

WHEREAS, the duties of the local health officer require a working knowledge of the State Board of Health Laws and Regulations, and

WHEREAS, it is common practice in many counties or cities or villages to pass the appointment of health officer around among the various physicians in the area irrespective of an individual's desire or ability to serve in this capacity,

THEREFORE BE IT RESOLVED that the House of Delegates go on record as disapproving this practice and recommending to the League of Municipalities, Board of County Commissioners, City and Village Councils, that health officers be appointed,

1. for a term of greater length, and
2. that the choice of health officer be based on interest, desire, and ability to serve, and
3. based on a recommendation from physicians in the community.

* * *

WHEREAS, the House of Delegates is cognizant and appreciative of the splendid co-operation which has been extended to the Minnesota State Medical Association in making its 98th annual convention the outstanding success that it is,

THEREFORE BE IT RESOLVED, that the House of Delegates extend its thanks to a few of the groups and individuals whose assistance has been invaluable: To the officers and members of the Olmsted-Houston-Fillmore-Dodge County Medical Society; the Olmsted-Houston-Fillmore-Dodge Auxiliary; the Committee on Local Arrangements; and the manager of our meeting place, the auditorium, for enabling the events of the program to be scheduled so effectively and for extending the hospitality of the convention city; to the Rochester hotels, for providing the background of service and courtesy for convention guests and delegates; to the newspapers and radio stations, which informed the public of developments at the convention which are of mutual concern to the physicians and the public.

The House of Delegates voted approval of all these resolutions.

Dr. Campbell, Chairman of the Council, presented the final report of the Council. The Council recommended to the House of Delegates that a standing committee be appointed, entrusted with the obligation of maintaining a fund to be obtained from voluntary solicitation of members to take care of any case of financial hardship in the medical profession. Two such cases were reported during the year, and it was pointed out that up to this time there has been no mechanism on the state level to handle such cases.

The House accepted the report.

Election of Officers

The next order of business was the election of officers. The House elected the following:

President-Elect—R. L. J. Kennedy, M.D., Rochester
First Vice President—A. E. Brown, M.D., Rochester

Second Vice President—Herbert Boysen, M.D., Madelia

Secretary—B. B. Souster, M.D., St. Paul

Treasurer—W. H. Condit, M.D., Minneapolis

Speaker, House of Delegates—C. G. Sheppard, M.D., Hutchinson

Vice-Speaker—H. M. Carryer, M.D., Rochester

Councilor, Fourth District—H. J. Nilson, M.D., North Mankato

Councilor, Sixth District—O. J. Campbell, M.D., Minneapolis

Councilor, Eighth District—C. L. Oppegaard, M.D., Crookston

Dr. O. J. Campbell, Minneapolis, was elected as a member of the House of Delegates to the American Medical Association, to succeed the late Dr. A. E. Cardle; Dr. George Earl, St. Paul, was re-elected as a member of the House of Delegates to the American Medical Association; Dr. W. W. Will, Bertha, was re-elected as an alternate delegate to the House of Delegates of the American Medical Association; Dr. E. M. Hammes, Sr., St. Paul, was re-elected as an alternate delegate to the House of Delegates of the American Medical Association; Dr. Julian DuBois, Sr., Sauk Centre, was elected to fill out the unexpired term of Dr. R. H. Creighton, Minneapolis, as an alternate delegate to the House of Delegates of the American Medical Association; Dr. Paul Leck, Austin, was elected as a substitute alternate delegate to the House of Delegates of the American Medical Association for Dr. W. L. Burnap.

Meeting Place, 1952 Convention

The final order of business was the selection of the meeting place for the 1952 annual meeting. The House of Delegates voted to accept the invitation of the Hennepin County Medical Society to hold the convention in Minneapolis.

The House of Delegates of the Ninety-eighth Annual Meeting of the Minnesota State Medical Association was adjourned at 3 p.m.

ACUTE ABDOMINAL CONDITIONS
Urological Aspects

(Continued from Page 663)

ing for ureteral injury after the other repairs had been completed.

Some injuries which bring the urinary tract acutely into the picture are not automobile accidents or gunshot wounds but surgical accidents. We all know that the urinary bladder may be injured during gynecological operations or during repair of hernias. The ureters may also be injured, and failure to recognize the accident may be disastrous. Some time ago a surgeon called me into his operating room to help repair a ureter cut during resection of a carcinoma of the colon. In another case a patient recently operated upon was brought in with signs of bowel obstruction and pelvic abscess; the abscess was found to contain urine and the divided ureter was later repaired without loss of the kidney. On two other occasions surgeons have asked me to see patients with anuria on the day after difficult hysterectomy. Cystoscopic investigation demonstrated bilateral ureteral injuries in both cases, and plastic surgery was done on the ureters in both cases. One ureter was deligated, one was transplanted to the colon, one was repaired by the side-to-side anastomosis, and one was replaced from the pelvic brim downward by a tube of bladder wall lifted from the bladder dome. Preoperative placing of inlying ureteral catheters before difficult pelvic operations is strongly recommended for the avoidance of such emergencies.

So, in summary, we see that acute abdominal conditions may involve the urinary tract, and urologic conditions may involve the intraperitoneal organs. Disastrous mistakes may be avoided if we will think of all possibilities, and make our diagnosis by elimination, using freely, when indicated, the teamwork that is available through our colleagues in related fields.

For those places where infants are most apt to die are necessarily the places where survivors are most apt to be sickly; and where, if they struggle through a scrofulous childhood to realize an abortive puberty, they beget a still sicklier brood than themselves, even less capable of labour and even less susceptible of education. It cannot be too distinctly recognized that a high local mortality of children must almost necessarily denote a high local prevalence of those causes which determine a degeneration of race (Simon, 1857). *Brit. M. J.*, Quoted by Norman B. Capon, M.D., April 15, 1950.

Reports and Announcements

INTERNATIONAL COLLEGE OF SURGEONS

The sixteenth annual assembly of the United States Chapter of the International College of Surgeons will be held in Chicago on September 10 through 13, with hearquarters at the Palmer House.

Prominent surgeons from throughout the world will participate in the program. Scientific sessions will be held by all specialty sections of the United States Chapter.

The annual banquet will take place on the evening of September 12. Mr. Lawrence Abel, F.R.C.S. (Eng.), of London, will be the principal speaker. The assembly will conclude with the convocation in the Civic Opera House on the evening of September 13. Senator Estes Kefauver will deliver an address on "The America of Tomorrow."

Hotel reservations may be arranged by writing to the Housing Division, Chicago Convention Bureau, 33 North LaSalle Street, Chicago 2, Illinois.

MANITOBA MEDICAL ASSOCIATION

The Manitoba Medical Association will hold its annual convention in Winnipeg on October 10, 11 and 12. An invitation to attend the meeting is extended to Minnesota physicians. Further information can be obtained from Dr. M. T. Macfarland, 604 Medical Arts Building, Winnipeg, Manitoba, Canada.

ARTHRITIS AND RHEUMATISM FOUNDATION

The Arthritis and Rheumatism Foundation is offering research fellowships in the basic sciences related to arthritis. Fellowships will be granted at both the predoctoral and postdoctoral levels. The predoctoral fellowships will range between $1,500 and $3,000 per annum, and the postdoctoral from $3,000 to $6,000. The deadline for these applications is November 15, 1951. Application forms may be obtained by writing the Medical Director, Arthritis and Rheumatism Foundation, 535 Fifth Avenue, New York 17, N. Y.

NATIONAL FOUNDATION FOR INFANTILE PARALYSIS

The National Foundation for Infantile Paralysis has announced a new type of short-term predoctoral fellowships for undergraduate medical students who are interested in research in medicine and the related biological and physical sciences. The fellowships cover a minimum of two months of experience in research under the direction of a competent investigator in the laboratories of approved medical schools or research institutes in the United States.

Under the plan, the dean of each four-year medical school has the privilege of nominating one medical student to receive a fellowship. The National Foundation for Infantile Paralysis will provide a stipend of $400 for each student who qualifies for the summer laboratory study. The purpose of the short-term fellowships is to enable medical school students to test their desires and determine their aptitudes to participate in research in medicine and related biological sciences at an early stage in their professional careers.

NORTHERN MINNESOTA MEDICAL ASSOCIATION

The annual meeting of the Northern Minnesota Medical Association will be held at Virginia on August 24 and 25. Officers of the association are Dr. L. W. Johnsrud, Chisholm, president; Dr. G. A. Sather, Fosston, vice president; Dr. C. L. Oppegaard, Crookston, secretary-treasurer. The program for the meeting is as follows:

August 24

Morning Session

9:00 a.m.—"Diagnostic Procedures in Pulmonary Tuberculosis." Dr. G. A. Hedberg, superintendent and medical director, Nopeming Sanitarium, Nopeming.

10:00 a.m.—"Diagnosis and Treatment of Cardiac Emergencies." Dr. R. O. Sather, Northwestern Clinic, Crookston.

11:00 a.m.—"Management of Urinary Incontinence in the Female." Dr. Bruce F. P. Williams, Duluth Clinic, Duluth.

12:00 noon—Business Meeting.

12:30 p.m.—Luncheon.

Afternoon Session

2:00 p.m.—"Principles in Open Reduction of Fractures." Dr. S. S. Houkom, Duluth Clinic, Duluth.

3:00 p.m.—"The Changing Mole." Dr. S. William Becker, associate professor of dermatology, University of Chicago, Chicago.

4:00 p.m.—"Functional Pathology of the Temporo-Mandibular Joints." Carl G. Storberg, D.D.S., Duluth.

7:00 p.m.—Annual Banquet. Speaker: Dr. John E. King, acting provost, University of Minnesota, Duluth Branch, Duluth.

August 25

Morning Session

9:00 a.m.—Clinico - Roentgen - Pathological Conference. Conducted by Dr. H. G. Moehring, Duluth, with the assistance of those presenting material and outlines of cases.

CONTINUATION COURSE

Roentgenology of Chest Diseases.—The University of Minnesota announces a continuation course in roentgen-

(Continued on Page 698)

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RESEARCH IN THE SERVICE OF MEDICINE **SEARLE**

CONTINUATION COURSE

(Continued from Page 696)

ology of chest diseases to be presented at the Center for Continuation Study from October 29 to November 3. The course will include detailed anatomical and pathological studies of the chest presented by means of lectures and demonstrations. Correlation of this material with clinical and roentgen findings will be emphasized. Visiting faculty members of the course include Dr. W. Edward Chamberlain, Temple University, Philadelphia; Dr. Benjamin Felson, University of Cincinnati; Dr. L. Henry Garland, Stanford University, San Francisco; Dr. George R. Krause, Mount Sinai Hospital, Cleveland; and Dr. Averill A. Liebow, Yale University, New Haven.

Dr. Chamberlain will also give the annual Leo G. Rigler Lecture in Radiology on the evening of Thursday, November 1. Chairman for the course will be Dr. Rigler, professor and head of the Department of Radiology. He will be joined by the members of the faculty of the University of Minnesota Medical School and the Mayo Foundation.

SOUTHWESTERN MINNESOTA SOCIETY

The meeting of the Southwestern Minnesota Medical Society, held on May 21 at the new Worthington Municipal Hospital in Worthington, was attended by eighty-four physicians and their wives. This was the largest turnout the society has ever had, and many doctors from outside the district attended, including ten from Sioux Falls and others from Rock Rapids, Iowa, Flandreau, South Dakota, Fairmont, Madelia and Minneapolis.

The scientific program consisted of the following addresses: "Thrombo-embolism" by Dr. Vernon Smith, Saint Paul; "Rupture of the Uterus" by Dr. Rodney Sturley, Saint Paul, and "Abdominal Pain in Children" by Dr. Erling Platou, Minneapolis.

Among those present were Dr. Herbert Boyson, Madelia, vice president of the Minnesota State Medical Association, and Dr. R. C. Hunt, Fairmont, counsellor of the state medical association. Dr. Erling Platou, past president of the Minnesota Medical Foundation, spoke briefly on the need for expanding the membership of the foundation, which is dedicated to the advancement of medicine in the state.

Dr. Leon Williams, formerly of Slayton, and Dr. O. W. Anderson, formerly of Luverne, both now living in Minneapolis, were given affiliate membership in the society. Dr. C. L. Sherman, Luverne, was honored for his fifty years as a practicing physician.

MISSISSIPPI VALLEY MEDICAL SOCIETY

The sixteenth annual meeting of the Mississippi Valley Medical Society will be held in Peoria, Illinois, September 19 through 21. The scientific program is planned to appeal to general practitioners. No registration fee will be charged. Further information can be obtained from Dr. Harold Swanberg, Secretary, 209-224 W.C.U. Building, Quincy, Illinois.

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Woman's Auxiliary

MINNESOTA

Mrs. Charles W. Waas

(The following summary of Woman's Auxiliary activities during 1950-1951 was prepared by Mrs. Waas for presentation at the National Convention in Atlantic City, June 11 to 15.)

Minnesota has just held its twenty-ninth annual meeting. For some time our state has been well organized, having twenty-nine organized county auxiliaries out of a possible thirty-two. In the three unorganized counties, however, we have members-at-large. We have 222 new members this year and a total of 2,106.

Our annual "Workshop" meeting was held in Saint Paul on October 16, 1950. Walter H. Judd, M.D., Minneapolis, Congressman from the Fifth District, our guest speeaker, chose for his subject, "Prescription for a Healthy Government." Mrs. Leo Schaefer, Salina, Kansas, first vice president, Woman's Auxiliary to the American Medical Association, talked to us on "The Auxiliary at Work." "Medicine's Educational Program" was the subject of Mrs. Harold Wahlquist, Minneapolis, president-elect, Woman's Auxiliary to the American Medical Association. Papers were given by the executive director of the Minnesota Division, American Cancer Society, and by the Chairman of the Board of Directors, Antone Guild, concerning Our Lady of Good Counsel Cancer Home. A question and answer period followed each talk. A film concerning cancer closed the session. Every member attending expressed delight with the very informative addresses. Approximately one hundred members attended.

The Mid-Winter Board meeting was held in Minneapolis. Reports and informal discussions made up the early morning program. Problems were talked over and suggestions received. We found that a meeting of this kind was not only helpful to county presidents and state chairmen, but it also brought our members closer together. We are proud of the friendliness and good feeling which exists in Minnesota. The afternoon program was given over to a talk and film on civil defense. Again, a question and answer period followed.

The usual pre-convention and post-convention Board meetings were correlated with the state convention, as well as the annual meeting for all members in the state. Our convention was particularly well attended this year and the members were very fortunate to have as guest speaker, Dr. John W. Cline, San Francisco, president-elect of the American Medical Association.

"Health Days," of which Minnesota is so justly proud, continue to be our greatest contribution to public relations. They are sponsored jointly by the State Auxiliary, the State Medical Association and the State Department of Health. Three programs were presented this year. Since the adoption of this form of health education in 1948, more than twenty of these all-day programs have been conducted. The interest aroused has been far-reaching and the requests for more come constantly from lay groups to our officers. They are always well attended. Through these programs we have endeavored to present health problems, matters concerning sanitation, legislation, schools, et cetera. Panel discussions with speakers who spoke with authenticity, and films concerning cancer, tuberculosis, accidents in homes and so forth, have made up our programs. All voluntary health agencies were invited to set up exhibits; a great wealth of literature was distributed. Chest x-rays have been taken and blood typed. Not all auxiliaries find it possible to put on such an extensive program. Many of them, however, have a "guest day" during their year and here again is afforded the opportunity of hearing the best informed speakers on pertinent subjects. At these meetings we also endeavor to distribute copies of *Today's Health* and educate the public as to its great value.

Letters were sent during the year to county presidents explaining at length the importance of the *Bulletin* in the conduct of every officer's and chairman's work, and we are happy to report a very substantial increase in the number of subscriptions. We feel confident that interest has been aroused sufficiently so as to keep our subscriptions steadily increasing.

Twice during the year, letters were sent to all county presidents outlining the campaign and subscription contest for *Today's Health*. Our Mower County group received mention as being one of the first ten in Group II. A two-year subscription was given to each member of the Senate and House of Representatives of the State Legislature by the Minnesota State Medical Association.

Our chairman of Emergency Nursing has worked closely with the Minnesota Nursing Association and the extent of her activities shows in the reports received from county presidents.

Three written appeals have been made by the chairman of the Medical and Surgical Relief Committee, asking that drugs, journals and text books be collected from doctors' offices. This work goes on continuously in our state.

A splendid list of suggestions which can easily be followed throughout the state has been prepared by our program chairman. She has stressed the necessity for every doctor's wife to be well informed, for each auxiliary to continue to concentrate on legislative issues, especially National Compulsory Health Insurance, and to be on the alert for "fringe bills." She advises the study of the twelve-point program and the voluntary prepayment medical and hospital care plans in our state. Work done by the chairmen of public relations, legislation, and program are closely related and each one has kept county officers alerted to all matters pertaining to their respective departments. Particularly is this true

(Continued on Page 702)

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(Continued from Page 700)

concerning material forwarded from national headquarters.

For many years our state auxiliary has awarded prizes to the winners of the essay contest on tuberculosis. All high schools participate. This year we again participated in this program.

The activities in which our county auxiliaries have engaged cover a large field. Every county auxiliary has been keenly aware of the necessity for health education and that theirs is a great opportunity to act as a liaison between the medical profession and lay people. Debates and talks on socialized medicine have been presented; one group has established an inoculation clinic with biennial service for smallpox vaccinations and immunization for diphtheria and tetanus. As many as nine films have been shown in some counties during the year; talks have been given in mental health, on Blue Shield and Blue Cross insurance programs and on "Crusade for Freedom." Thousands of cards have been printed and distributed concerning socialized medicine by several counties; several counties have sponsored teas for students in public and private schools and have had speakers who discussed the different types of positions which are open to students following specified training and study for nurses. One county group has sponsored a Christmas seal radio contest among school children. They also have been carrying on a very successful program of "workshop" meetings. Their programs included social legislation, current state political issues, et cetera.

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One of the small auxiliaries has but one project—the placing of *Today's Health* at strategic points. Another small unit has a scholarship fund for nursing. All counties are urged to have members participate in lay organizations and one of the larger auxiliaries reports that their members are active in nineteen such groups.

A few of our small county auxiliaries center their efforts on work for local hospitals. Many groups are active in philanthropic work such as the making of cancer dressings, collection of clothing for indigent children, seasonal treats and gifts to patients in charity wards, and one of our large groups has provided salary for a staff leader in an expanded program of leisure time activity for aged indigent men and women who have no home life. Another county has sponsored the sale of articles for inmates of a tuberculosis sanitorium netting over $2,700 for these patients.

County auxiliaries have been active in all health drives, i.e., Red Cross, cancer, poliomyelitis, tuberculosis and heart. They have staffed booths and have placed plastic hearts in stores and public buildings. They have been co-operating with parent-teacher associations, church groups and with the Legion auxiliaries.

Through our quarterly "Newsletters," which our State Association underwrites, and the two pages allotted to us each month in MINNESOTA MEDICINE, our members have been kept informed. Articles from officers and chairmen appear monthly in MINNESOTA MEDICINE and our "Newsletters" carry detailed accounts of our meetings. During the late summer, cards were mailed to every state member by the State Office bearing a request from the president that each member register for the fall election and that she see to it that all members of her family do likewise.

Minneseota has added another successful year to her fine history. Credit is given to her splendid officers and chairmen, and particularly to Mrs. Harold Wahlquist who has done so much, not only for her own state, but also for many states throughout our country. We are indeed very proud of her and sincerely wish her success and happiness in her forthcoming office as president of the Woman's Auxiliary to the American Medical Association. May we acknowledge also at this time, the help received from the inspirational and informative meeetings it was our privilege to attend in San Francisco and again in Chicago at the Presidents' Conference. Our thanks and best wishes go to our national officers and chairmen whose suggestions have made our work so pleasant and so worthwhile.

For a sick man or woman disease is an acutely personal problem, but it is also a communal problem. And if the public is to co-operate with the medical profession in the treatment of disease in the individual it will, we believe, be able to do this more intelligently if it has some idea of the size of the problem to the nation at large. Tuberculosis is an obvious example. The medical profession is only too well aware of the personal tragedies that have been caused by the purveyors of quack remedies for such dangerous diseases as cancer. *Brit. Med. J.*, Ed., March 17, 1951.

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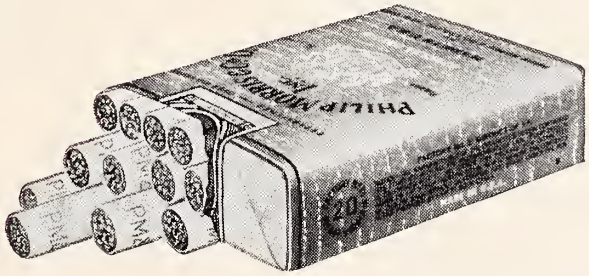

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In Memoriam

HENRY A. BEAUDOUX

Dr. Henry A. Beaudoux, formerly a nose and throat specialist in Saint Paul and Minneapolis, died May 20, 1951, at his home in Saratoga, California.

Dr. Beaudoux was born in Normandie, France. He obtained his M.D. degree from the University of Minnesota in 1895 and took postgraduate work in London, Paris and Vienna.

Upon the death of Dr. Jacob Schadle of Saint Paul on the turn of the century, Dr. Beaudoux rented his office in the Lowry Arcade, Saint Paul. In 1921, he moved to Minneapolis where he practiced his specialty until 1924. He practiced at San Jose, California, for many years and at Oakland, California. He was a member of the Santa Clara Medical Society, the California State Medical Association and the American Medical Association.

Dr. Beaudoux is survived by his wife, a son, George W. Beaudoux of Whittier, California, and two daughters, Mrs. Evelyn Beaudoux Dickey and Mrs. Samuel Earl Breck, both of Piedmont, California.

ABEL R. ELLINGSON

Dr. A. R. Ellingson of Detroit Lakes, Minnesota, died May 21, 1951, at St. Barnabas Hospital in Minneapolis. He was fifty-four years of age.

Dr. Ellingson was born at Northwood, Iowa, November 23, 1896. He attended Luther Academy, Albert Lea, Minnesota, and Luther College, Decorah, Iowa, where he graduated with a B.S. degree in 1920. He obtained his M.D. degree from the University of Minnesota in 1925 and interned at Minneapolis General Hospital.

He was a past president of the Detroit Lakes Board of Education and of the Civic and Commerce Association. He was a member of the Clay-Becker County Medical Society, the Minnesota State Medical Association and the American Medical Association. He was also a member of the American College of Surgeons. For a number of years he was coroner of Becker County.

Dr. Ellingson is survived by his wife, Lila Schaer Ellingson, and three sons, William, Raymond and Tommy. Two brothers and five sisters also survive.

J. GASTON GAY

Dr. J. Gaston Gay, former fellow in surgery of the Mayo Foundation, died on January 22, 1951, of coronary occlusion.

Dr. Gay was born October 14, 1898, at Atlanta, Georgia. He received the degree of B.A. in 1919 from the University of Georgia, Athens, and degree of M.D. in 1923 from Johns Hopkins University. He interned at Johns Hopkins Hospital from September, 1923, to September, 1924. He entered the Mayo Foundation as a fellow in surgery in October, 1924; received the degree of M.S. in Surgery in 1927 from the University of Minnesota, and left the Mayo Foundation in January, 1928, at which time he went to Atlanta to practice surgery. He was instructor in surgery at Emory University Medical School and was a member of the staffs of the Crawford-Long Hospital, the Piedmont Hospital, the Emory University Hospital, and the Grady Memorial Hospital.

Dr. Gay was a fellow of the American Medical Association and a member of the Pithotomy Club (Baltimore) and of Phi Chi. He was certified by the American Board of Surgery.

WALLACE T. PARTCH

Dr. Wallace T. Partch, former fellow in medicine of the Mayo Foundation, died in Oakland, California, on April 4, 1951.

Dr. Partch was born on February 16, 1899, at Shanghai, China. He received the degree of A.B. in 1921 from Oberlin College, Ohio, and the degree of M.D. in 1926 from Rush Medical College. He interned at Wesley Memorial Hospital, Chicago, from January, 1926, to April, 1927. He entered the Mayo Foundation as a fellow in medicine in April, 1927, and left the Mayo Foundation in April, 1930, at which time he went to the Welborn Hospital Clinic, Evansville, Indiana, where he remained until January, 1932. He then went to Carle Hospital Clinic, Urbana, Illinois, for about a year. Since then he has been practicing at Oakland, where he was on the staffs of the Alameda County Hospital, the Peralta Hospital, the Berkeley General Hospital and the Berkeley Alta Bates Hospital.

Dr. Partch was a member of the American Medical Association and Alpha Kappa Kappa and was an associate member of the American College of Physicians. He was certified by the American Board of Internal Medicine.

JOHN CLIFFORD WHITACRE

Dr. John C. Whitacre, of Saint Paul, died May 28, 1951. He was born August 31, 1876, at Cambridge, Massachusetts. He attended schools in Cambridge before moving to Saint Paul, where he graduated from Central High School. His M.D. degree was obtained at the University of Minnesota in 1901. Since then he had practiced in Saint Paul, having an office at 116 South Robert from 1901 to 1917 and in the Lowry Medical Arts since 1917.

Dr. Whitacre was a member of the Ramsey County Medical Society, the Minnesota State Medical Association and the American Medical Association and was recently elected to the fifty-year club of the Minnesota State Medical Association. He was also a member of the Saint Paul Scottish Rite bodies, a life member of Saint Paul Lodge No. 3, A.F. and A.M. and a life member of the Osman Temple Shrine.

Dr. Whitacre is survived by his wife and a son, John C. Whitacre, Jr., who is studying medicine at the University of Minnesota.

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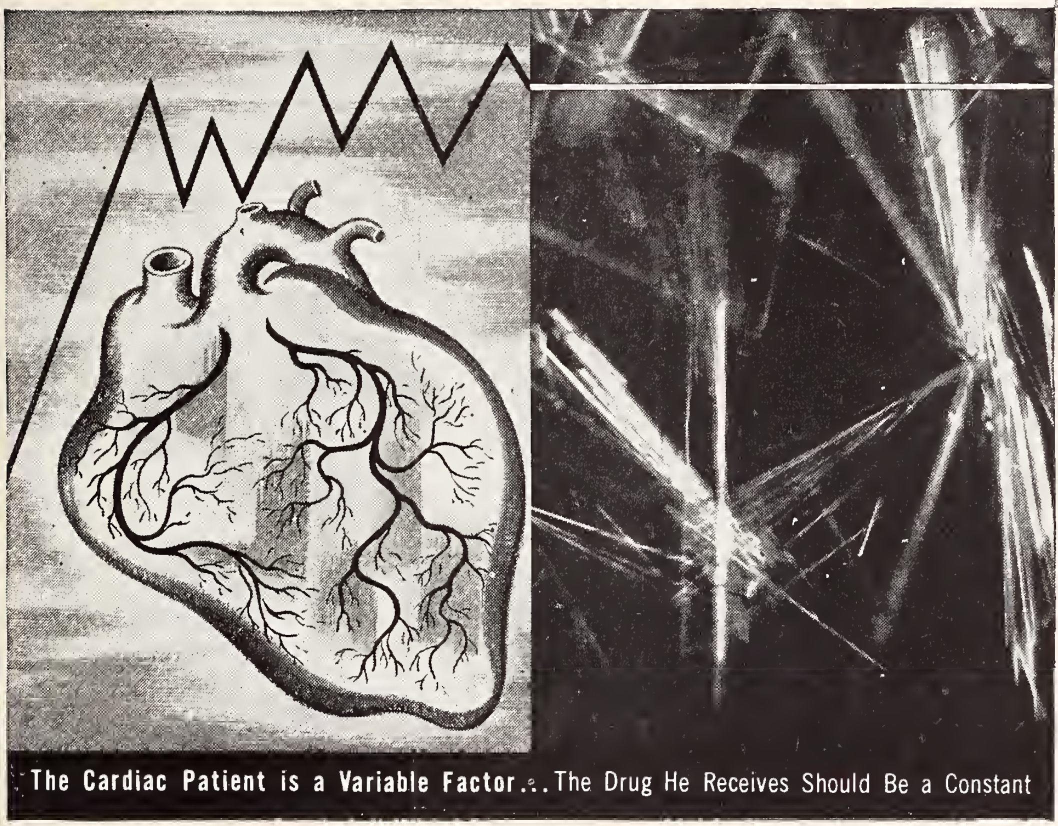
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◆ Of General Interest ◆

Dr. W. F. Braasch, a member of the emeritus staff of the Mayo Clinic and former chief of its urology section, was presented with the Keyes memorial medal at the annual meeting of the American Association of Genito-urinary Surgeons at Sky Top Lodge, Pennsylvania, on May 16. Top award in its field, the Keyes medal has been conferred only five times in the past twenty years. Dr. Braasch received the medal for his outstanding work in urology during the past years.

On May 25, at the annual alumni reunion banquet at the University of Minnesota, Dr. Braasch was one of nine alumni who received the University's Outstanding Achievement award. The award is an honor which the University gives only to its alumni for exceptional accomplishment in the recipient's field of endeavor.

* * *

Dr. Gordon W. Strom has announced the opening of his new office at 709 Medical Arts Building, Minneapolis. His practice will be limited to urology.

* * *

At the recent meeting of the Minnesota Chapter of the American College of Chest Physicians, **Dr. G. A. Hedberg,** Nopeming, was elected president, and **Dr. Arthur M. Olsen,** Rochester, secretary-treasurer. **Dr. Herman J. Moersch,** Rochester, was appointed governor for the State of Minnesota.

* * *

Dr. Gordon R. Kamman, Saint Paul, spoke on "Psychosomatic Aspects of Gynecology" at a regional postgraduate seminar in Alexandria on May 22.

* * *

"Modern Aspects of Medicine" was the title of an address presented by **Dr. E. B. Kinports,** International Falls, at a meeting of clubwomen of Koochiching County on May 19.

* * *

Dr. William B. Stromme, Minneapolis, attended a meeting of the American Gynecological Society at the Waldorf in New York on May 7 to 9 as an invited guest.

* * *

Dr. O. F. Mellby, Thief River Falls, who has been a member of the Oakland Park Sanatorium commission for about thirty years, was honored at a meeting at the sanatorium on May 11. The honorary dinner featured a decorated cake for Dr. Mellby, who was seventy-five years old.

* * *

Dr. Richard O. Leavenworth, Jr., son of Dr. Richard O. Leavenworth, Sr., of Saint Paul, was married to Miss Elizabeth Ann Athens, daughter of Dr. and Mrs. Alvin G. Athens, of Duluth, on June 16 at the Pilgrim Congregational Church in Duluth. Dr. Leavenworth, Jr., recently finished his internship at Ancker Hospital, Saint Paul.

* * *

Dr. Louis L. Flynn, Jr., has opened an office at 550 Lowry Medical Arts Building, Saint Paul, for the practice of medicine, limited to the emotional and neuropsychiatric problems of children and adolescents. Dr. Flynn is a member of the American Board of Psychiatry and Neurology.

* * *

Mr. A. W. Robertson of Pittsburgh was chosen to serve a fourth term as chairman of the board of directors of the **American Heart Association** at a meeting held on June 6 at Atlantic City. Mr. Robertson is chairman of the board of the Westinghouse Electric Corporation and was first elected chairman of the board of the American Heart Association in 1948 when the association was officially transformed from an exclusively scientific organization into a voluntary public health agency.

Gold Heart Awards were presented to Dr. James B. Herrick, emeritus professor of medicine at the University of Chicago; Dr. Frank N. Wilson, professor of medicine at the University of Michigan, and Dr. H. M. Martin, associate clinical professor of medicine at Yale University.

* * *

Dr. E. J. Fogelberg, Dr. Marilyn A. Jarvis and Dr. Harry W. Fogelberg, a dentist, have opened the Snelling Medical Center at 45 North Snelling Avenue, Saint Paul.

* * *

Principal speaker at a meeting of the Wannaska Parent-Teacher Association on May 9 was **Dr. Robert J. Delmore** of Roseau. He discussed the main signs and symptoms of cancer. In addition to his talk, a motion picture on the same subject was shown.

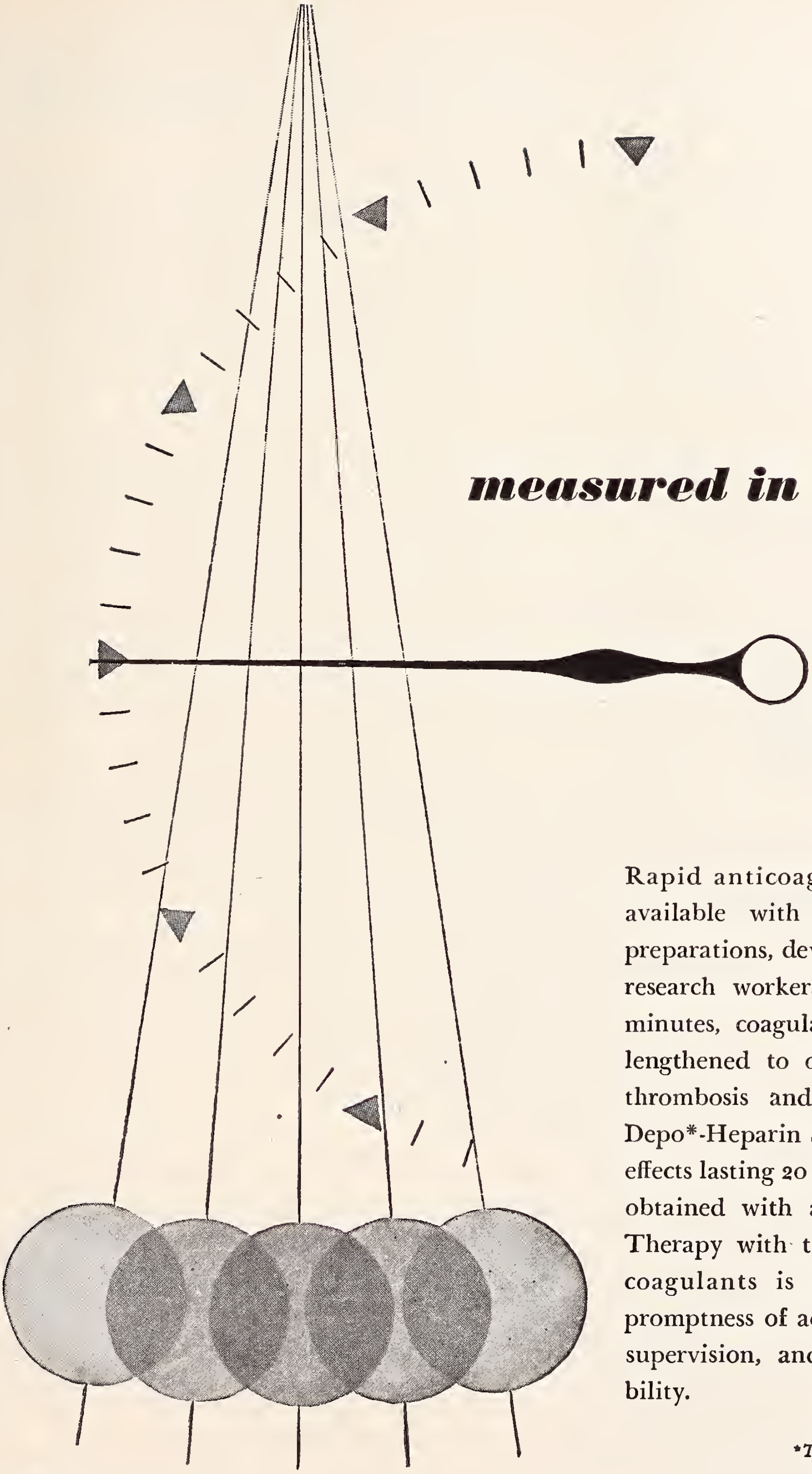
* * *

Dr. R. L. Parsons, Monterey, announced during the middle of May that the communities of Triumph and Monterey would have an additional physician beginning July 1. He said that **Dr. Edward Johnson,** formerly of Virginia, was entering a partnership with him and that the two of them would maintain offices in Monterey. At the time of the announcement, Dr. Johnson, a graduate of the University of Minnesota Medical School, was working at Ancker Hospital, Saint Paul.

* * *

Dr. Marguerite Schwyzer has opened an office in association with her brother, **Dr. Hanns Schwyzer,** at 2069 Ford Parkway, Saint Paul. Dr. Marguerite Schwyzer graduated from the Yale Medical School in 1943, served an internship at the University of

(Continued on Page 708)



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(Continued from Page 706)

Chicago Clinic and has taken postgraduate work at the University of California, the Massachusetts General Hospital in Boston, and Bellevue Hospital in New York.

* * *

Dr. Herman E. Hilleboe, New York State Commissioner of Health, spoke on "The Importance of a Chest X-ray of Every Person Admitted to a Hospital" at a meeting of public health workers, physicians and hospital board members in Minneapolis on June 25. Participating in the discussion were representatives of out-of-town hospitals in which the giving of chest x-rays to all patients admitted is already being carried out.

* * *

Dr. Frederick M. Owens, Jr., has opened an office at 768 Lowry Medical Arts Building, Saint Paul, for the practice of surgery. Dr. Owens graduated from Princeton before obtaining his medical degree at the University of Chicago. He served his internship and fellowship at Billings Hospital, Chicago, and took postgraduate work in brain and neurosurgery at the University of Pennsylvania while in the army. He was an assistant professor of surgery at the University of Chicago before he returned to Saint Paul.

* * *

Dr. and Mrs. Alvin Sach-Rowitz of Moose Lake returned home on May 19 after a one-month trip through the western part of the United States, during which they drove about 7,700 miles.

* * *

It was announced during the middle of May that **Dr. S. T. Normann** of Saint Paul would become associated in practice in July with **Dr. R. D. Davis** and **Dr. B. J. Gallagher** of Waseca. A graduate of the University of Minnesota Medical School, Dr. Normann has been house physician at Ancker Hospital, Saint Paul.

* * *

Dr. Philip S. Hench and **Dr. Edward C. Kendall,** Rochester, have been named joint winners of the first Dr. C. C. Criss Award for outstanding contributions in fields of public health and safety. Presentation of the award, which amounts to $10,000, was made at a meeting of the American Rheumatism Association in Atlantic City on June 9.

Dr. Hench and Dr. Kendall were selected as winners because of their work in the development and use of cortisone. The award was made by Mutual of Omaha, an insurance company.

* * *

Dr. Arthur E. Krieser, Anoka, became a fellow of the American College of Chest Physicians at the annual meeting of the organization in Atlantic City on June 9. Dr. Krieser is head of the tuberculosis control unit for the Division of Public Institutions at the Anoka State Hospital.

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If the election carries by the necessary majority, then the Board may sell the bonds and pledge as security the full faith and credit of the taxing district (the School District). At the time the bonds are issued the Board certifies a tax levy to the County Auditor to be levied during each of the years the bonds are outstanding which levy will be made automatically unless sufficient funds are on hand from other sources.

Funds derived from the collection of taxes for bonds and interest must be used only for that purpose and, should they prove to be insufficient, any other available funds must be used to meet bond payments. If necessary, additional taxes must be levied. There is no limitation on the taxes which may be levied on any taxable property based on its assessed valuation for Minnesota School Districts but the total school district taxes in any one year may not exceed an amount equal to $40 per capita of all persons residing in the District excluding any taxes necessary to pay outstanding bonds.

Taxes levied to pay principal and interest on these bonds are collected at the same time and as a part of other property taxes against all taxable property, both real and personal, in the District. These taxes have priority and come ahead of any other lien or claim on this taxable property. It is no exaggeration, therefore, for the holder of one of the School District's bonds to drive through the District, past the dairy and grain farms, past the factory and production plants in the community, along the railroad track, past the stores, bank, homes, etc., and say, "All of this property is security for my bond."

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During the past spring, Mantoux tests were given to 5,189 pupils in the rural, village and city schools of **Morrison County.** The tests were given as part of a countywide drive against tuberculosis.

Of those tested, 3,392 were pupils in rural and village schools, and 237 of them showed a positive reaction to the test. In public and parochial schools of Little Falls, 1,797 pupils were tested—894 in high schools and 903 in grade schools. Positive reactors in the high schools totaled ninety-one (10 per cent), and in grade schools, forty-three (5 per cent).

* * *

Dr. Wesley W. Spink, professor of medicine at the University of Minnesota, is spending July and August in Europe, correlating current brucellosis research. Dr. Spink, who is director of the United States Brucellosis Center at the University of Minnesota, has been designated a consultant on brucellosis by the World Health and Food and Agriculture organizations of the United Nations. His work in Europe is a co-operative effort to bring together information from the various brucellosis research centers for the benefit of each country.

* * *

Dr. John H. Noble has moved from Graceville to Amery, Wisconsin, where he is practicing in partnership with another physician. Dr. Noble was

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$15,000.00 accidental death *$75.00 weekly indemnity, accident and sickness*	**$24.00** *Quarterly*
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* * *

Dr. Frederic T. Becker, Duluth, was elected a member of the American Dermatological Association at a recent meeting of the organization at Hot Springs, Virginia. Dr. Becker is on the staff of the Duluth Clinic.

* * *

Dr. Theodore R. Fritsche, New Ulm, has been elected to a three-year term as a member of the board of directors of the University of Minnesota Alumni Association. His election was announced at the annual business meeting of the association at the University of Minnesota on May 26.

* * *

On May 24 **Dr. Donald L. Peterson** announced the opening of his offices for the practice of medicine in Lake City.

* * *

Dr. John J. Bittner, director of the University of Minnesota's division of cancer biology, has been named first winner of the Comfort Crookshank Award for Cancer Research, an honor presented through the Middlesex Hospital Medical School in London, England.

* * *

Dr. Ralph Rossen, state mental health commissioner, returned to the Hastings State Hospital as superintendent on June 1. He is continuing, however, to function as commissioner of mental health and will spend part of his time at the Minneapolis office. His return to Hastings as superintendent is to open up the intensive treatment center there and to develop further the program of follow-up care, training of personnel and research.

* * *

Dr. Otto C. Phares, St. Cloud, was the principal speaker at a meeting of the Community Hospital staff at Princeton on May 21 **Dr. W. F. McManus,** Princeton, presided.

* * *

Dr. Thomas B. Magath, Rochester, has been named to the pathology section of a newly organized advisory committee for improved Federal medical care. The committee was established to help obtain economy and efficiency in the government's system of hospital and medical care. Its aim is not to have "more government in medicine but better medicine in government."

* * *

A new **medical clinic in Wabasha,** staffed by seven physicians, was formally opened at an open house on May 20. The one-story brick structure contains private offices for the staff members, a large lobby, consultation and examination rooms, business office and storage rooms. Members of the clinic staff are Dr. C. G. Ochsner, Dr. B. J. Bouquet, Dr. L. M. Ekstrand, and Dr. D. A. Martin, all of Wabasha; Dr. D. W. Ellis, Elgin; Dr. D. G. Mahle, Plainview, and Dr. M. O. Bachuber, Alma, Wisconsin.

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Dr. Joseph E. Murphy, Marshall, spoke on "New Drugs and Their Uses" at a meeting of the Lynd Farm Bureau in Lynd on May 17.

* * *

Dr. Moses Barron, Minneapolis, was honored by the Adath Jeshurun congregation at its sixty-seventh anniversary dinner in Minneapolis on May 16. He was presented with leather-bound testimonials praising his contributions to the Zionist movement, to medicine and to the synagogue.

* * *

Dr. John R. Schmidt, Mountain Lake, attended a meeting of the American Leprosy Mission in New York during the middle of May.

* * *

During April and May **Dr. and Mrs. E. H. Rynearson,** Rochester, toured many of the European countries. Dr. Rynearson presented addresses before several European medical groups, among them an address before the section on endocrinology of the Royal Society of Medicine in London.

* * *

Dr. R. A. Beise, Brainerd, was honored at a testimonial dinner sponsored by the Rotary Club of Brainerd on June 5. Principal speaker at the banquet was **Dr. William A. Coventry,** Duluth.

A graduate of Rush Medical School in 1901, Dr. Beise practiced at Fergus Falls until 1903. He then moved to Brainerd, where he has since remained. During his many years of practice there, Dr. Beise has not only been active in state and local medical organizations but has also served the community by continuous participation in local government and civic affairs.

At the honorary banquet for him, the Rotary Club presented Dr. Beise with a gift in recognition of his years of service to the club and to Brainerd.

* * *

Dr. Anthony Ourada, formerly of Waseca, has moved to Ceylon and has taken over the practice of Dr. J. M. Grogan. A graduate of the University of Minnesota Medical School, Dr. Ourada interned at St. Elizabeth's Hospital, Youngstown, Ohio, and then served in the army for two years, most of the time in Germany with the army of occupation. He completed a surgical residency at Swedish Hospital, Minneapolis, before beginning practice at Waseca in July, 1950.

* * *

Guest of honor at a banquet on May 22 sponsored by the Hopkins Educational Association was **Dr. Frank J. Kucera,** Hopkins, who was retiring as a member of the school board. Guests at the banquet presented Dr. Kucera with a gift in recognition of his service.

* * *

After six months of ill health, **Dr. Leonard A. Borowicz,** Minneapolis, has reopened his practice, with offices at 1011 West Broadway.

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Surgical Technic, Surgical Anatomy and Clinical Surgery, four weeks, starting August 6, September 10, October 8.
Surgical Anatomy and Clinical Surgery, two weeks, starting July 23, August 20, September 24.
Basic Principles in General Surgery, two weeks, starting September 10.
Surgery of Colon and Rectum, one week, starting September 17, October 15.
Esophageal Surgery, one week, starting October 15.
Thoracic Surgery, one week, starting October 8.
Gallbladder Surgery, ten hours, starting October 22.
Breast and Thyroid Surgery, one week, starting October 1.
General Surgery, one week, starting October 1.
Fractures and Traumatic Surgery, two weeks, starting October 8.
GYNECOLOGY—Intensive Course, two weeks, starting September 24, October 22.
Vaginal Approach to Pelvic Surgery, one week, starting September 17, November 5.
OBSTETRICS—Intensive Course, two weeks, starting September 10, November 5.
MEDICINE—Intensive General Course, two weeks, starting October 1.
Gastroenterology, two weeks, starting October 15.
Electrocardiography and Heart Disease, two weeks, starting October 22.
UROLOGY—Intensive course, two weeks, starting September 24.

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Dr. W. W. Yaeger, Marshall, was re-elected to a three-year term as a state director of Minnesota's Blue Shield at the organization's annual meeting in Rochester early in May.

* * *

Dr. Francis J. Braceland, chief of the section on psychiatry in the Mayo Clinic, left Rochester about July 1 to become psychiatrist-in-chief at the Institute of Living, Hartford, Connecticut. The Institute of Living is the third oldest psychiatric hospital in the United States and one of the largest private institutions of its kind in the nation.

A graduate of Jefferson Medical College in 1930, Dr. Braceland was certified by the American Board of Psychiatry and Neurology in 1938. He joined the Mayo Clinic staff in 1946 and became head of the section on psychiatry in 1947. Last year he was appointed chairman of the governor's advisory council on mental health in Minnesota.

* * *

Dr. Bertram S. Adams, Hibbing, was honored at a meeting of the Hibbing Chamber of Commerce on May 29. Range physicians and other friends gathered to pay tribute to Dr. Adams for his fifty years of service in Hibbing and throughout the Range. Among those who praised Dr. Adams' contributions to medicine were **Dr. L. W. Morsman**, Hibbing, and **Dr. A. W. Graham**, Chisholm. A piece of luggage was presented to the guest of honor by **Dr. T. A. Estrem**, Hibbing, in behalf of the Chamber of Commerce.

* * *

Dr. W. T. Greenfield, after fifteen years of practice at Delano, has moved to Cokato. On June 1 he reopened the Cokato Hospital under his ownership. Dr. Greenfield is a graduate of the University of Minnesota Medical School.

* * *

Dr. William H. Davis, chief-of-staff of the Community Health Center, Two Harbors, left on May 15 for a trip to England, where he is taking a course at the Institute of Neurology, Queen Square Hospital, London. He is expected to return late in July and to resume his practice on August 16.

* * *

Dr. R. C. Hottinger, Janesville, has purchased a local office building and has remodeled the interior to form a suite of new offices for him.

* * *

Dr. Robert N. Barr, deputy executive officer of the Minnesota Department of Health, was the principal speaker at a meeting of the Sixty-Over Club, sponsored by the Minneapolis Public Library on May 18. Dr. Barr spoke on "Health After Sixty."

* * *

A total of 3,608 persons registered for the **typhoid immunization clinic** held on four consecutive week ends in Mankato in April and early May, was reported by Dr. A. G. Liedloff, district health officer. He said that the physicians of Mankato and North Mankato were entirely responsible for the clinic idea

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and that they had put in a total of ninety-six hours in the clinic.

Of those who registered for the clinic, nearly 3,500 persons completed the series of three injections. Vaccine was furnished by the Minnesota Department of Health, and numerous local organizations and companies contributed time, money or supplies to the project.

* * *

Among the speakers at a two-day course on juvenile deliquency problems, held at the University of Minnesota on May 15 and 16, were **Dr. Reynold A. Jensen**, associate professor of pediatrics and psychiatry, and **Dr. H. S. Lippman**, clinical professor of psychiatry and neurology.

* * *

Newspapermen of eight southern Minnesota counties met with the trustees of the Mineral Springs Sanatorium on May 9 to meet **Dr. Ezra V. Bridge**, new sanatorium director, and to inspect the physical plant of the sanatorium. In a brief talk, Dr. Bridge asked the press to assist, through news stories and editorials, in the sale of Christmas Seals, in the early detection of tuberculosis, and in getting donors for the Red Cross blood program.

* * *

Dr. Owen G. McDonald, Duluth, was the principal speaker at the afternoon session of a cancer education conference held in Backus on May 26. The title of his talk was "Modern Methods of Diagnosis and Treatment."

Dr. and Mrs. Hans Johnson, Kerkhoven, returned home on May 7 after having spent the winter at St. Petersburg, Florida.

* * *

Dr. O. C. Braun, Grand Rapids, spoke on cardiac diseases at a meeting of the nurses staff at the Itasca Memorial Hospital on May 22.

* * *

Dr. John F. Arnesen, who recently completed more than three years of graduate work in medicine at the Mayo Foundation, Rochester, announced on May 17 the opening of offices for the practice of medicine in Owatonna. His practice will be limited to internal medicine.

A graduate of the University of Minnesota Medical School, Dr. Arnesen served in the armed services for three years during World War II. In addition to his private practice in Owatonna, Dr. Arnesen will act as a consultant in internal medicine at the Minnesota State School and Colony at Faribault.

* * *

Newspaper editors of the Red River Valley were guests of the **Red River Valley Medical Society** at a meeting in Thief River Falls on May 22. Public and mental health problems were discussed, as well as legislative matters and means of improving cooperative relations between the press and physicians. Among those in attendance was **Dr. J. F. Norman**, Crookston, president of the Minnesota State Medical Association.

Dr. F. J. Vollmer, of the Winona Clinic, attended a course in surgery of the eye at the Chicago Eye, Ear, Nose and Throat College in Chicago during the second week of May.

* * *

Dr. J. S. Lundy, Rochester, has been named by the Olmsted County board of commissioners to replace A. J. Lobb on the county hospital board.

* * *

Dr. C. F. Brigham, Jr., St. Cloud, was one of the speakers at a workshop on "Nursing Aspects of Atomic Warfare" held at the St. Cloud Hospital on May 21, 22 and 23.

* * *

Dr. F. H. Walter, International Falls, was the principal speaker at a cancer educational program conducted at Loman on April 24.

* * *

Dr. B. F. Van Valkenburg, retired Long Prairie physician, celebrated his eighty-seventh birthday on April 30. He first began practice at Long Prairie in 1894 and continued in active practice for fifty years.

* * *

Dr. A. F. Johnson, formerly of Sanborn, has moved to Isle and opened offices for the practice of medicine.

* * *

Dr. E. J. Huenekens, Minneapolis, was honored on June 4 at a special tea by the Community Health Service—the group he helped begin nearly forty years ago.

The Community Health Service actually was formed in 1934 when two other organizations, the Visiting Nurse Association and the Infant Welfare Society, were combined. Dr. Huenekens was a guiding influence in the Infant Welfare Society from the days when the first baby clinics were started by the society.

Today the Community Health Service has sixteen child care clinics in the Minneapolis area, and its visiting nurses provide bedside care to the sick. Much of its work is done in co-operation with the city health department.

* * *

Dr. Joseph M. Ryan, Saint Paul, was recently elected a fellow of the American College of Chest Physicians.

Members of the **McLeod County Medical Society** entertained editors and legislators of McLeod County and neighboring counties at a meeting in Hutchinson on May 17. The meeting was held primarily to discuss problems confronting the medical profession and others in the campaign against government control of medicine. Also discussed was the idea of setting up a grievance committee for the public.

* * *

The motion picture, "Breast Self-Examination," was shown at a meeting for women in Minnesota City on June 11. **Dr. Roger Hartwich**, Winona, discussed the subject and conducted a question-and-answer session following the presentation of the film.

* * *

Dr. Robert R. Kierland, Rochester, has been elected to the executive committee of the United States Figure Skating Association. Dr. Kierland has been actively interested in the sport for several years and has done much to popularize it in Rochester.

* * *

Dr. Walter C. Alvarez, emeritus member of the Mayo Clinic, now practicing in Chicago, was presented with the Julius Friedenwald medal at the annual meeting of the American Gastroenterological Association in Atlantic City on June 9. The award was for distinguished scientific achievement in gastroenterology.

* * *

Among those in attendance at the annual meeting of the American Heart Association in Atlantic City early in June was **Dr. B. J. Cronwell** of Austin.

* * *

Principal speaker at a joint meeting of the St. Louis County Medical Society and Range Medical Society at Lake Eshquagama on June 14 was **Dr. Harry B. Hall**, clinical assistant professor of orthopedic surgery at the University of Minnesota. Dr. Hall discussed fracture management and rehabilitation of certain fractures.

* * *

Announcement of the opening of a modern, new clinic building and the association of **Dr. J. Arnold Malmstrom** with **Dr. Harry B. Ewens** in the operation and management of the Ewens-Malmstrom Clinic in Virginia was made on June 16. Personnel of the clinic is expected to be increased as soon as qualified professional men can be obtained.

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HOSPITAL NEWS

Reconstruction of the top floor of **Miller Hospital,** Saint Paul, into a psychiatric ward was announced on May 29. The cost of the project is expected to be $450,000. The new unit will have a capacity of about fifty-five beds when finished. The project is part of a $2,000,000 improvement program at the hospital.

* * *

Cornerstone-laying ceremonies for the sixty-two-bed **Meeker County Memorial Hospital** were held in Litchfield on June 22. Total cost of the hospital, when completed, is expected to be $870,000.

* * *

It was announced on May 25 that Dr. G. I. Dahl of Mankato had been named honorary chairman of **Immanuel Hospital's** $350,000 building campaign. As chairman, he will head an organization of more than 600 volunteer workers in a drive to raise funds to double the hospital's capacity.

* * *

The results of the staff election at **Community Hospital,** Princeton, late in April are as follows: Dr. W. T. McManus, president, and Dr. D. J. Sanderson, vice president, both of Princeton, and Dr. Norman Metcalf, Onamia, secretary.

* * *

Officers of the new **Worthington Municipal Hospital** were announced on May 4, as follows: Dr. P. W. Harrison, president; Dr. E. A. Kilbride, vice president, and Dr. O. M. Heiberg, secretary, all of Worthington.

BLUE CROSS-BLUE SHIELD NEWS

A recent analysis of claims paid by Minnesota Blue Shield shows that over a period of sixteen months, over 2,800 claims have been received which were for services performed six or more months earlier. Of these, 350 involved services performed more than one year before the claim was filed. When this matter was presented to the Executive Committee of Minnesota Medical Service, Inc., it was decided that some action should be taken to reduce such claims. As the contract is now written, the responsibility for initiating a Blue Shield claim lies with the subscriber. The contract states, "At the time medical, surgical, obstetrical or related services are requested the participant subscriber shall inform the attending doctor of medicine that he is a participant subscriber in Minnesota Medical Service, Inc. Failure of the participant subscriber to notify the doctor of medicine of his participation within thirty days after the date services are initiated shall release the Corporation from any and all obligations under the contract as applied to such services."

These old claims represent a definite hazard to the organization and the co-operation of all physicians is needed in minimizing this hazard. This hazard can most simply be reduced by presenting claims promptly. However, it is realized that in some instances the subscriber fails to advise the doctor of eligibility for Blue Shield benefits. To enable the claims department to dispose of any such cases fairly, information is being requested from the physician on any claims presented six months or more after service. Needed information consists of the date on which the patient or subscriber first advised the doctor of his Blue Shield coverage. Other Blue Shield plans disclaim any liability for claims over six months old; others reduce the allowance on a graduated basis depending on the age of the claim; for example, a 10 per cent reduction on three months' old cases, or 50 per cent on six months' old cases, is imposed in the contract. A more definite limitation may be necessary if experience so indicates. Such limitation would be incorporated in the contract.

A number of claims have been received in which the accident, injury, or illness was paid by a third party responsible. The intent of Blue Shield is to see that people have accident, injury, or illness medical or surgical care paid so that they will not have to worry about the costs of medical care. For this reason when Workmen's Compensation provides coverage or when care can be received in some tax supported institution in which it is apparent that no costs will accrue to the people, Blue Shield provides no coverage. When accident insurance is carried by the third person responsible for the injury, should Blue Shield benefits provide double medical care coverage?

Blue Shield payments for April business covered 7,275 cases in the total amount of $267,914. Rejected claims totaled 943, and of these 240 were for patients who held no Blue Shield contract. The subscriber's identification card indicates whether or not the patient is covered by Blue Shield and it would save both time and money to determine whether or not the patient is covered by Blue Shield before presenting a claim. The other leading reasons for disallowance include claims for treatment of previously known conditions during the first ten months of the contract, benefits for consultation or dual service, and the treatment of medical conditions outside of the hospital. The education of the public to the types of service covered by Blue Shield is a time consuming project and personal contact with the subscribers is limited. The physician's office could provide invaluable liaison in educating the patients about the benefits to which their Blue Shield contract entitles them and also about the types of service which are not compensable.

During April, Blue Cross provided 80,605.7 days of hospital care for 14,576 subscribers. The cost for hospital care during April amounted to $1,007,202.

During the first four months of this year, 55,596 hospital claims providing 314,691.6 days of hospital care have been incurred, compared with 51,398 claims providing 294,613.9 days of hospital care during the same period of the previous year.

During the first four months of 1948, 368 persons out of thousand contracts in effect received hospital care; during 1949, 413; during 1950, 420; and during the first four months of 1951, 440 persons out of a thousand contracts received hospital care—an increase of 72 per one thousand contracts since 1948, or an increase of over 17 per cent.

An increase in incidence of over 17 per cent for the same number of contracts in effect appears without question to be abnormal.

Blue Cross was organized to provide necessary hospital care. To keep the rates for subscribers within reason, doctors and hospitals are requested to help prevent abuse of the Plan.

IS THERE A DOCTOR SHORTAGE?

(Continued from Page 686)

tuition. The student agrees to return to Wyoming to practice.

Surely, there seems to be little cause for alarm over the present number of physicians in the country. Certainly, the moderate expansion of the present medical schools and the contemplated new schools with the development of methods for providing for practitioners in rural districts should be sufficient to meet the present situation. The medical schools have certain objections to resuming the accelerated undergraduate medical school curriculum. Medical education today is a long and strenuous course. It should have substantial vacation periods interspersed along the way.

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BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical Libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

CHEST X-RAY DIAGNOSIS. Max Ritvo, M.D., Assistant Professor of Radiology, Harvard Medical School; Instructor in Radiology, Tufts Medical School; Roentgenologist-in-Chief and Director, Department of Radiology, Boston City Hospital; Associate Radiologist, Beth Israel Hospital, Boston; Radiologist, Jewish Memorial Hospital, Jewish Tuberculosis Sanitarium of New England, Revere Memorial Hospital and Hudson Hospital. 558 pages. Illus. Price $15.00, cloth. Philadelphia: Lea & Febiger, 1951.

CLINICAL- UNIPOLAR ELECTROCARDIOGRAPHY. Bernard S. Lipman, A.B., M.D., Assistant Professor in Medicine, Emory University School of Medicine, Atlanta, Georgia; and Edward Massie, A.B., M.D., F.A.C.P. Assistant Professor of Clinical Medicine, Washington University School of Medicine; Director of Heart Station, Barnes Hospital, St. Louis; Director, Cardiovascular Clinic, Washington University Clinics. 232 pages. Illus. Price $5.00, cloth. Chicago: Year Book Publishers, 1951.

PRIMER OF ALLERGY: A GUIDEBOOK FOR THOSE WHO MUST FIND THEIR WAY THROUGH THE MAZES OF THIS STRANGE AND TANTALIZING STATE. By Warren T. Vaughan, M.S., M.D., Richmond, Va. With illustrations by John P. Tillery. 3d ed. rev. by J. Harvey Black, M.D., Dallas, Texas. 175 pp. Price $3.50. St. Louis: C. V. Mosby Co., 1950.

This excellent book, revised by Harvey Black, is intended primarily as a companion piece to "Practice of Allergy" by the same authors. Actually, like many "Primers," it is a splendid introduction to the field of allergy for physicians and perhaps a little too "heavy" for most patients. Fortunately, it is presented in sufficient detail to more than satisfy the most conscientious and often most desperate allergy patient. There are detailed instructions, both general and specific, under headings such as "General Directions to a Patient with Allergic Eczema," "Directions for Avoiding and Removing House Dust," and so on.

Lists of foods, such as "Foods which Contain Wheat," "Foods which May Be Used to Supplement a Badly Restricted Diet," are also provided. The manual is well indexed and easily read. It will serve as a handy guide for the physician and a handbook for his more intelligent and more exacting patients.

Robert J. Brotchner, M.D.

SPEECH HABILITATION IN CEREBRAL PALSY. By Marion T. Cass. Speech science instructor, Columbia University. New York: Columbia University Press, 1951. x + 212 pages. Price $3.00.

It is estimated that seven out of every 1,000 children under seventeen years of age suffer from cerebral palsy; there are about 150,000 children in the United States who have this severe handicap. Seventy-five per cent of these children can learn how to lead a useful, relatively happy life.

Dr. Marion T. Cass has made a special study of effective ways to help these children physically, mentally, and emotionally. Her book Speech Habilitation in Cerebral Palsy is an indispensable guide for all who are interested in providing an educational opportunity for those who have cerebral palsy.

The book gives a picture of the methods of rehabilitation with special emphasis on the habilitation of speech. The author begins with a description of cerebral palsy and an explanation of its causes and effects. She also provides a co-ordinated sequence of exercises designed to improve the muscles that are basic to the speech process.

In the final section, Dr. Cass presents a comprehensive philosophy of education for these handicapped children. It has been necessary for Dr. Cass to go into many allied fields of cerebral palsy in order to determine the proper approach to the speech problem in these children.

Dr. Cass is a cerebral palsy therapist in metropolitan New York and speech science instructor at Columbia University College of Physicians and Surgeons. She is associated with Dr. Winthrop Morgan Phelps in private practice. Her extensive study of cerebral palsy covers more than twenty years and includes teaching at Canada's University of Alberta, the University of Denver, and Hunter College, N. Y. She has served as speech supervisor at Glen Cove, N. Y., and as state supervisor of handicapped children in Illinois.

ADVANCES IN INTERNAL MEDICINE.—William Dock, M.D. and I. Snapper, M.D., editors. Tinsley R. Harrison, M.D., Chester S. Keefer, M.D., Warfield I. Longcope, M.D., and J. Murray Steele, M.D., associate editors. 549 pages. Price $10.00. Volume IV. Chicago: Year Book Publishers, Inc., 1950.

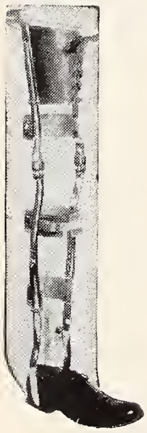
This book is a composite of several articles on internal medicine written by many contributors. Each article handles a particular subject and includes the latest advances in that subject. Each is written by a contributor who is particularly interested in that field.

1. "Nitrogen Mustards in the Treatment of Neoplastic Disease" by David A. Karnofsky.—The article covers the history, chemistry, physiology, and pathological effects of nitrogen mustards on living tissues. It explains the use of nitrogen mustard, particularly HN_2, in the treatment of Hodgkin's disease, lymphosarcomas, mycosis fungoides, leukemias, polycythemia vera, primary lung carcinoma, and other neoplastic diseases. The author also explains its use in comparison with x-ray therapy in the above diseases.

2. "Use of Radioactive Isotopes in Medicine" by Louis Robert Wasserman and Robert Loevinger.—This article deals with the use of radioactive isotopes in the study, diagnosis, and therapy of diseases. It discussed the nature of these isotopes and the use of the Geiger-Muller counter. The use of these radioactive isotopes in intermediary metabolism, pharmocology, and toxicology is explained. The isotopes of radium, phosphorus, and iodine are dealt more at length with because of their more extensive uses in practical medicine.

3. "Brucellosis" by Abraham I. Braude and Wesley W. Spink.—This article brings out the fact that brucellosis has steadily increased the past several years and all three strains of the organism can be found in human infection. Pathology, epidemiology, diagnostic methods, and newer treatments are reviewed. The treatment of brucellosis with combined sulfadiazine and streptomycin and with the newer antibiotics aureomycin and chloramphicol is discussed.

4. "Advances in the Neuromuscular Disorders" by Donald McEachern and Reuben Rabinovitch.—The article defines neuromuscular disorders as those affecting the lower motor neuron, nerve fiber, myoneural junction and muscle fiber. It reviews the diseases affecting these structures with possible mechanisms involved. Methods of treating these disorders rationally are discussed using the



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physiology, pathology, and biochemistry involved as the basis for such treatment.

5. "Use of Sodium Depletion in Therapy" by William Dock.—This article explains the rationale of a low salt diet in hypertensives and especially Kempner's diet of rice and fruit. It stresses the techniques of sodium depletion as being (1) a low sodium diet and (2) the use of mercurial diuretics. The cation resins are discussed. Sodium depletion is most effective in hypertension especially in patients with heart failure, or in patients with moderate degrees of kidney damage, primary or secondary.

6. "Clinical Use of Anticoagulants" by J. Earle Estes and Edgar V. Allen.—This article discusses the relative merits of heparin and dicumarol in anticoagulent therapy. It reviews their uses in thrombophlebitis, pulmonary embolism, myocardial infarction, acute and chronic peripheral arterial occlusions, cerebral thrombosis, thrombosis of the retinal vein, and other conditions. Their use pre- and post-operatively is also discussed.

7. "Hepatitis and Cirrhosis of the Liver" by Arthur J. Patek, Jr.—The article reviews viral hepatitis as to etiology, pathogenesis, pathology, clinical picture, and treatment. The possible occurrence of chronic hepatites is brought out. The role of rest and diet in the treatment is re-emphasized. Laennec cirrhosis is reviewed as to its possible etiology throughout the world and possible clinical courses.

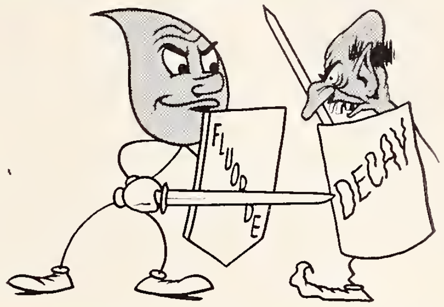
8. "Hepatic Tests" by Hans Popper and Fenton Schaffner.—This article gives an extensive review of the liver function tests and the uses of these tests in differentiating hemolytic, hepatotoxic, and biliary types of jaundice. The rationale of each test is discussed in relation to the type of metabolism it disturbs in the liver. The use of these tests in differentiating between medical and surgical jaundice is stressed.

9. "The Vascular Physiology of Hypertension" by G. W. Pickering.—This article reviews the physiology of hypertension especially the increased peripheral resistance due to the constriction of the smaller arteries, and arterioles in various parts of the body. The role of heredity and various mechanisms responsible for this, such as humeral and neurogenic, are discussed. Humeral included adrenalin, posterior pituitary substances, adrenal cortical substances, and particularly renin. Neurogenic mechanisms referred to the vaso motor nerves and their influences by the carotid sinus reflex, aortic reflexes, and possible psychogenic influences. The etiology of essential hypertension is discussed.

The book is well written and does give clear, concise, extensive reviews in the latest advances made in the nine subjects discussed and is recommended to all those who are interested in these subjects.

James Bellomo, M.D.

Important News!



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HANDBOOK OF PEDIATRIC MEDICAL EMERGENCIES.—Adolph G. DeSanctis, M.D., Professor of Pediatrics and Chairman of the Department of Pediatrics, Post-Graduate Medical School, New York University-Bellevue Medical Center; Director of Pediatrics, University Hospital, New York University-Bellevue Medical Center; Director of Pediatrics, Gouverneur Hospital, New York City; and Charles Varga, M.D., Instructor in Pediatrics, Post-Graduate Medical School, New York University-Bellevue Medical Center; Assistant Attending Pediatrician, University Hospital, New York University-Bellevue Medical Center; Assistant Visiting Pediatrician, Gouverneur Hospital, New York City. 284 pages. Illus. Price $5.00. St. Louis: C. V. Mosby Co., 1951.

This handbook of pediatric medical emergencies admirably sets forth in concise outline form the methods of treating emergencies encountered by the practitioner in dealing with children. It consists of ten chapters, the first five of which deal with emergencies of the major organ systems, e.g., cardiovascular, gastrointestinal, genito-urinary, neurological, and respiratory systems. The remaining five chapters deal with drowning, poisoning, care of the premature infant, miscellaneous emergencies, and a final chapter on pediatric procedures. An addenda and index are also included.

The directions given and mode of treatment are conservative, sound, and based on well-founded pediatric principles. The book is up to date, including the use of the newer drugs, such as aureomycin, chloromycetin and terramycin to treat acute indections as the meningitides; furmethide in the treating of urinary retention in polio; and BAL in the treatment of arsenic poisoning, to mention only a few.

The book is small and can easily be carried around in the average doctor's bag. Those physicians who treat children will find it a mighty handy book to have for reference in treating pediatric emergencies.

G. I. F.

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FOR SALE—Complete modern Westinghouse x-ray equipment, basal metabolism machine, other electrical equipment, instruments, examining table, furniture, et cetera. Will sell at a sacrifice for quick disposal. Retiring. Address Charles P. Robbins, M.D., 67 W. Sixth Street, Winona, Minnesota.

FOR SALE—Complete four-room office equipment for general practice of Medicine and Surgery. Office up to date in every way. Everything like new. Nothing reserved; retiring. Wonderful location for young man. Address E-260, care MINNESOTA MEDICINE.

FOR SALE—Surgical instruments and operating room equipment at less than 40 per cent of original cost. Excellent for small town hospital. F. L. Kling, M.D., Milaca, Minnesota.

FOR SALE—Complete National cautery set, Admiral diathermy, 50 milliampere x-ray machine and Bucky-diaphragm table. Reason for selling: specializing. Low price. Address E-262, care MINNESOTA MEDICINE.

FOR SALE because of death, a general practice, office and equipment, in a large rural community; no other doctor; population of village 450; hospital facilities at thirteen and twenty-eight miles. Address Mrs. J. T. Laughlin, Grey Eagle, Minnesota.

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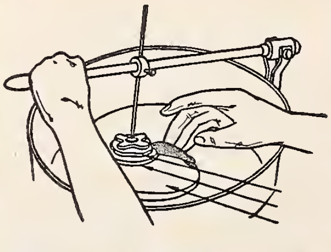

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Volume 34 **August, 1951** **Number 8**

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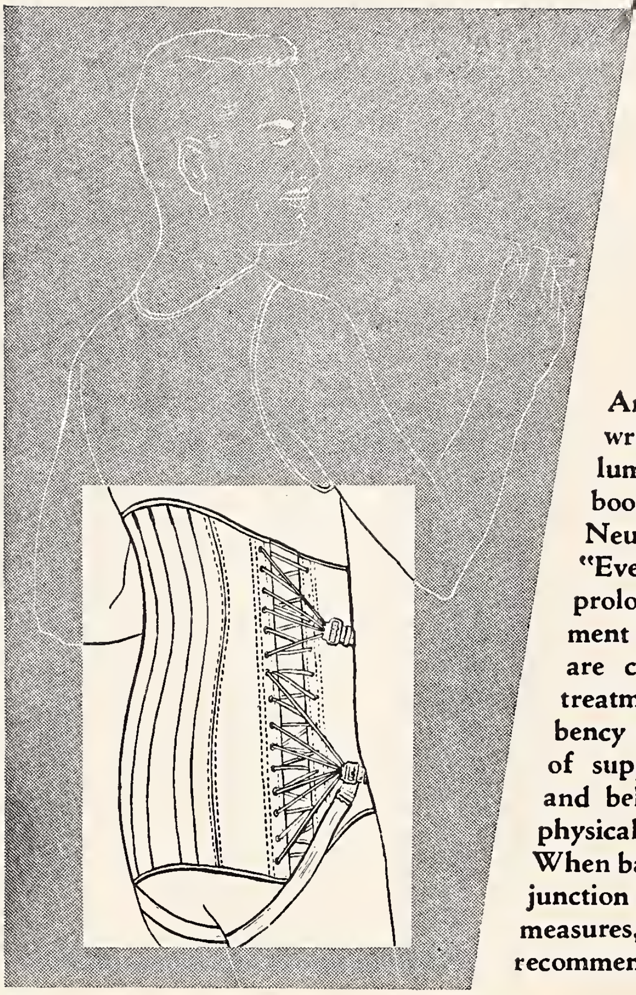

An Orthopedic Surgeon* in writing on the treatment of lumbosacral disorders in his book Backache and Sciatic Neuritis states as follows:—"Every patient should be given prolonged conservative treatment before radical measures are considered. Non-operative treatment consists of recumbency in bed, the application of support (adhesive strapping and belts of various types) and physical therapeutic measures. When backache at the lumbosacral junction is uncontrollable by such measures, a fusion operation is recommended."

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Philip Lewin, M.D., F.A.C.S.
Backache and Sciatic Neuritis,
Chapter XXXIX, Page 580
Published 1943 by Lea & Febiger, Philadelphia

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Glass, S. J., and Rosenblum, G.: J. Clin. Endocrinol. 3:95, 1943.

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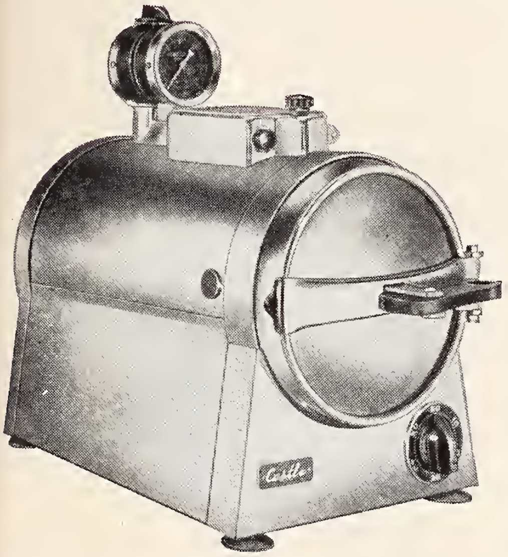

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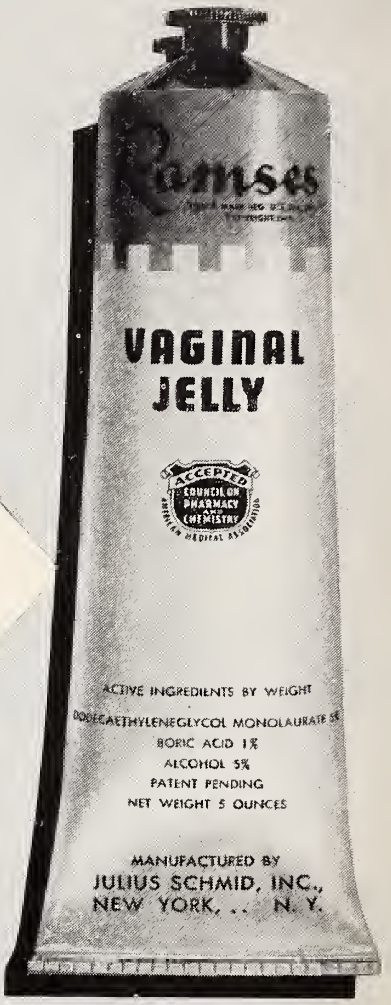
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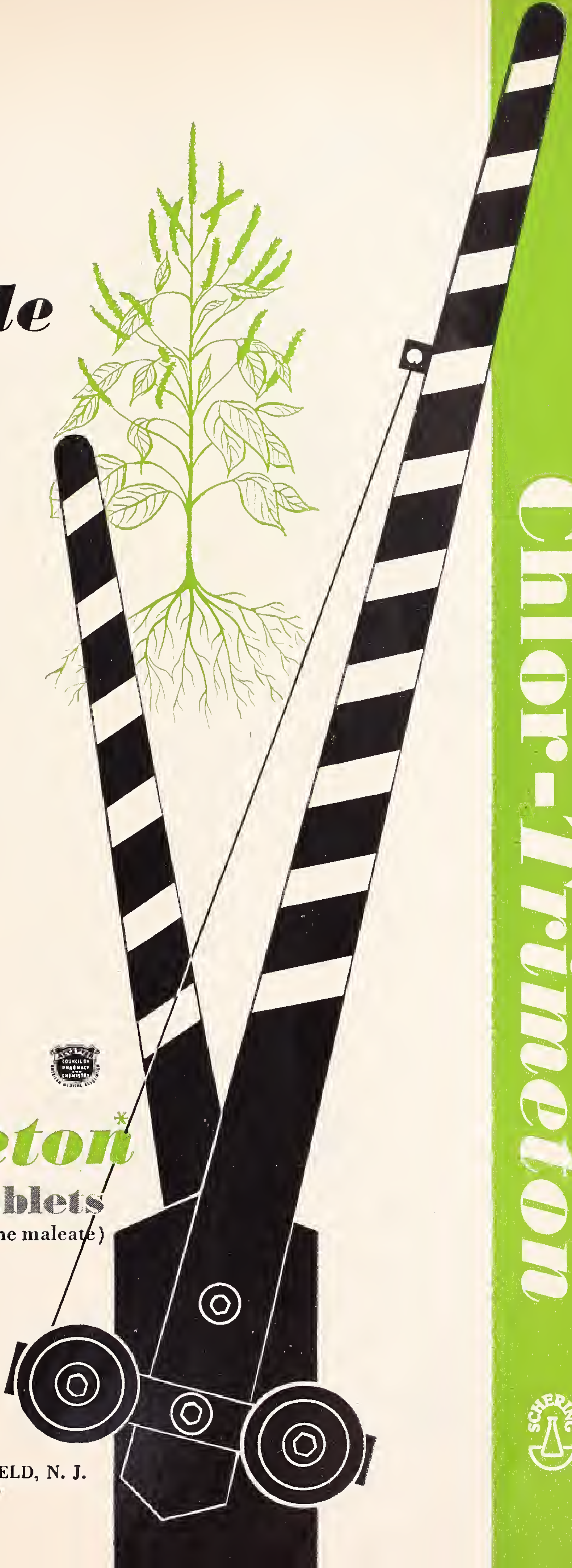

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[1] Jeans, P. C.: Feeding of Healthy Infants and Children, J.A.M.A. *142*:806 (Mar. 18) 1950.

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Hamblen, E. C.: North Carolina M. J. 7:533 (Oct.) 1946.

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*Perloff, W. H.: Am. J. Obst. & Gynec. 58:684 (Oct.) 1949.

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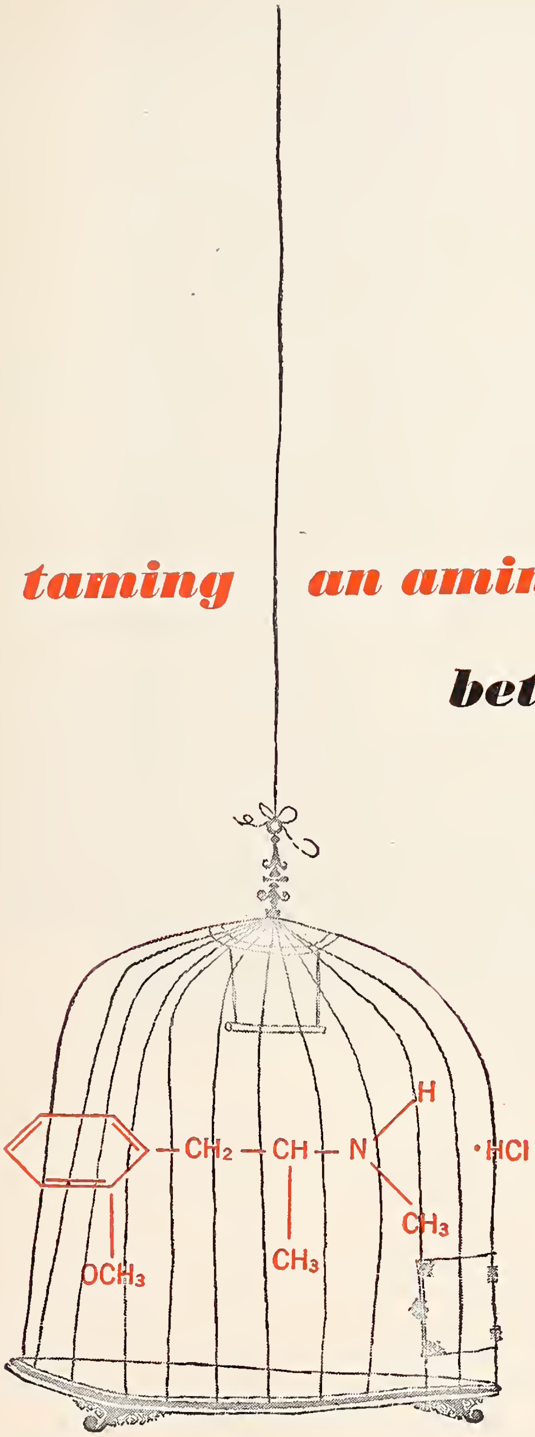

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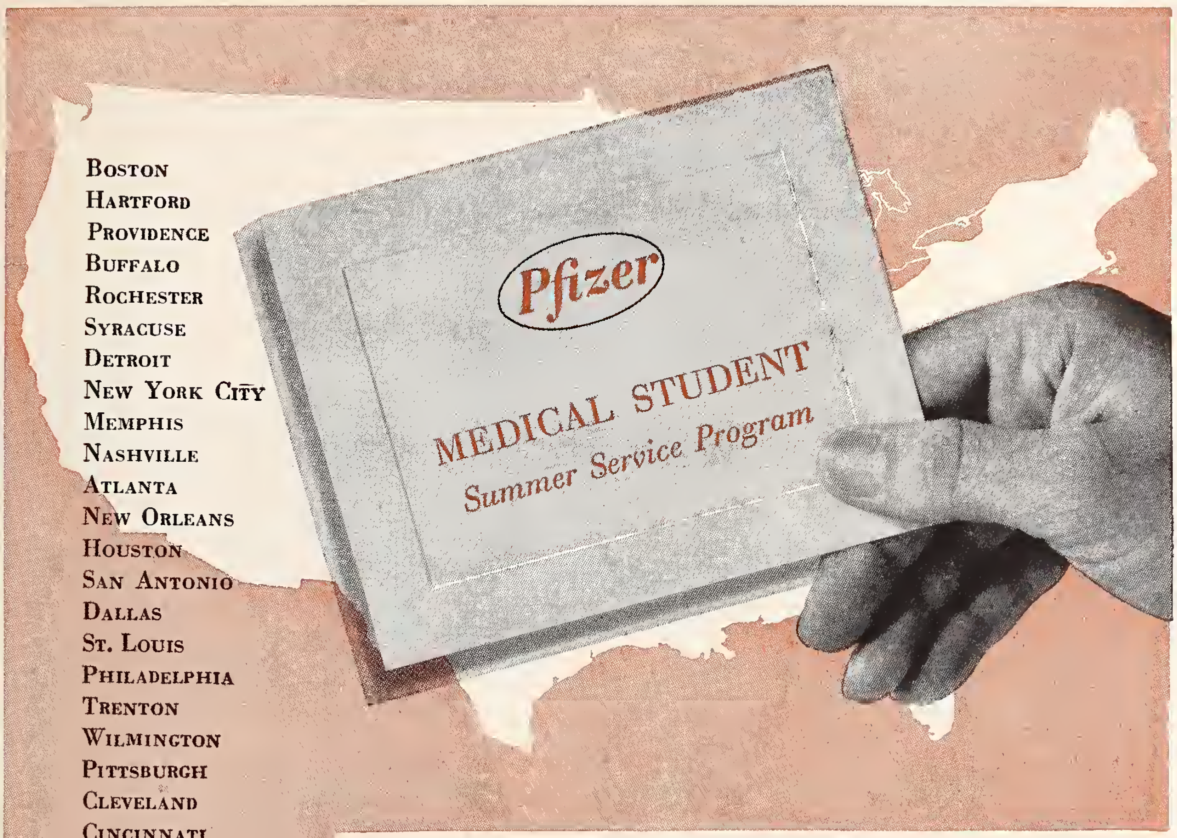

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NASAL ALLERGY

W. T. WENNER, M.D.
St. Cloud, Minnesota

ALLERGY is the most common condition affecting the nose and paranasal sinuses, and because of this, it is well for us to acquaint ourselves with its symptoms, findings, and treatment. The symptoms and findings have a wide range and variation. It is necessary that a painstaking history be taken. In a high percentage of cases a family relationship can be established; in others a specific allergen can be discovered, especially in the case of inhalants.

The most common complaints are those of nasal obstruction, increased nasal discharge, irritation and sneezing. The obstruction may be partial or total, acute or chronic, and should be considered allergic in origin until proven otherwise. Some experience that the obstruction may change during the course of the twenty-four hours, be total on awakening in the morning, and after a bout of sneezing and saturating several handkerchiefs, be free and open the remainder of the day. Others have that tight, stuffed feeling when confined to a dry hot atmosphere and describe it "as if their head would bust." The irritation and sneezing can be very annoying, as in the case of the seasonal type, and are usually more annoying in the sensitivity to the inhalants. The discharge is watery unless the allergic rhinitis is complicated with an infection.

The typical nasal findings are the pale, edematous membrane and the boggy turbinates and a watery secretion. Posterior rhinoscopy either direct or indirect should be done, otherwise the mulberry hypertrophy of posterior ends of the lower turbinates will be missed, which frequently is the cause of the distressing symptoms of obstruction. In individuals with a history of longer duration, nasal polyps are usually found, and as Hansel states, a very large percentage, but not all nasal polypi, are allergic. They may grow to the proportion you have all seen of completely filling nares, sinuses, and extending into the nasopharynx. In the later stages of polyp formation with secondary infection the nasal discharge is thick, tenacious, almost glue-like in character.

The x-ray findings in presence of nasal allergy depend to some extent upon complicating infection that is present. Involvement of the sinus mucosa is high in patients with seasonal hay fever or pollen asthma. However, prior to or shortly after the season the incidence of sinus abnormality is no greater than in nonallergic cases. Exposure to allergens produces edema of both nasal and sinus mucosa, which leads to closure of sinus ostia accompanied by partial absorption of air in the occluded sinus. As a general rule in allergic changes all sinuses are involved, in contrast to infection when an isolated or one-sided sinus shows a change.

Great importance is laid to the cytologic study in arriving at the diagnosis of allergy. Hansel asserts that eosinophilia of the nasal secretion is the most dependable sign of allergy. While eosinophilia is present in a high percentage of cases, its absence does not exclude allergy. Although cytologic study was the routine procedure in our office for a time, it is employed at present but rarely. It is helpful in children to differentiate infection.

In the light of the more recent concepts advanced on the cause and treatment of allergy, thought must be given to factors other than im-

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munologic. Williams in a very comprehensive and detailed study of the literature concludes that allergy has two aspects, the one clinical and the other immunologic. He finds advantage to be gained by consideration of allergy in the light of autonomic dysfunction, in that all allergies, whether an antigen-antibody reaction is present or not, can be treated from the viewpoint of clinical medicine.

In the treatment of allergic rhinitis consideration is given to the local, medical, surgical, and immunological approach. It is not within the scope of this paper to discuss immunization of the seasonal type of vasomotor rhinitis. The aqueous preparations on the market for the relief of nasal congestion are legion, but their use other than in the acute stage or in the seasonal type is to be condemned. While the local use of cocaine preparations is not advocated and its frequent use should not be permitted, its use in .25 to .5 per cent solution in a privine-antistine base has been found to be most satisfactory during the distressing discomfort of the hay fever season. Because a permit for refill is required, this type of preparation can be controlled.

The acutely congested nose seen especially in the seasonal type of vasomotor rhinitis, with the pale boggy lower turbinates completely filling the floor of the nares, frequently receives considerable benefit for an indefinite period by the topical application of trichloracetic acid to the lower turbinates. There may be local reaction and discomfort, but if the nose is previously anesthetized, side effects can be kept minimal, and relief offered is of sufficient degree and duration to warrant its use.

The nonspecific remedies include the vasodilators, the most recent one being Roniacol, which is longer acting and has been found beneficial in the treatment of allergies. Jones finds benefit by the administration of dilute hydrochloric acid in 5 to 20 minim doses after each meal. Williams uses a combination of ascorbic acid and rutin as effective maintenance therapy after the acute symptoms have been relieved by other medication. Saylor reports effective treatment of vasomotor rhinitis with hesperidin chalcone sodium. Vitamin therapy other than improving general vitality has been found wanting as a relieving agent.

We have all experienced the relief offered in some of the severe cases of seasonal hay fever by the administration of ephedrine capsules in combination with barbiturates and aminophylline. Patients who react poorly or unpleasantly to ephedrine may be benefited by propadrine hydrochloride in ⅜ to ¾ gr. capsules.

Antihistamines are now being prescribed in widely read magazine articles, radio shorts, newspaper advertising and displays in drug stores. We also may be carried away by this high-pressure salesmanship. Yet we feel quite certain that the beneficial results do not follow the pattern of the ads. The antihistamines do give temporary relief to some patients with nasal allergy, but with prolonged use an immunity may develop; however, this may disappear if the drug is withdrawn for a time. Unfortunately, certain side effects accompany the use of antihistamines, the most discussed of which is drowsiness; but more distressing with certain antihistamines for some patients is the accompanying nervous agitation, increase in pulse rate, and insomnia, so that prescribing the drug at bedtime may result in a sleepless night. Another frequent complaint is the dryness of mouth and nose that accompanies their use. The antihistamines will continue to have wide use as a therapeutic agent in the treatment of nasal allergy, but their specific merit needs cautious interpretation, and other modes of therapy are preferred to their long-continued use.

The use of ACTH and cortisone in nasal allergy has had only limited use in cases of polyposis. While results in some are dramatic, in others there is failure. Conclusive reports await further use. At present the use of a cortisone nasal spray is being observed in a select group of patients with recurrent polyposis.

The surgical treatment consists in correcting any existing obstruction that interferes with proper aeration and drainage of nasal passages and sinuses. It is well to inform patients that correcting this obstruction will not result in cure of the allergic condition. We have all erred in removal of tonsils and adenoids or have done a submucous resection to correct a nasal obstruction when an allergic process was the offending agent. A small number of patients may have a temporary relief from asthma by removal of infected tonsils and adenoids; for others, an asthma may become aggravated or remain unchanged. Following the removal of tonsils and adenoids, there occurs in some a proliferation of Waldeyer's ring which acts as a source of focal infection. This tissue is most effectively eliminated with the application of radium. Radical nasal surgery in case of generalized polyposis associated with asthma may give temporary relief from the asthma, but it should be instituted not as a cure of the asthma but for relief of the distressing nasal symptoms. As stated earlier, a frequently overlooked causative factor in the nasal obstruction is the presence of mulberry posterior ends of the lower turbinates, and their removal gives beneficial relief.

A high percentage of patients in our office with nasal allergies are given sensitization tests using the intradermal technique. In a series of patients here reported the ages ranged from eight to seventy-four. There were forty-seven males and sixty-two females. They showed positive reactions of 3+ or more, on a basis of four, to house dust in addition to other inhalants and foods.

Forty patients were given a routine series of immunizing stock house dust extract, starting with .1 c.c. of the 1:10,000 solution and increasing up to the 1:100 solution: a total of fifteen to twenty injections. A number of these patients take maintenance injection every three to four months depending on recurrence of symptoms and relief obtained. In this group, twelve had corrective nasal surgery. These patients were polled as to their beneficial results. Four reported no improvement; thirty-four reported improvement. In this group, twenty-two avoided the sensitive foods and nineteen took antihistamines for a variable period.

Number of patients tested		106
Males	46	
Females	60	
Age range		6-74 years
Number of patients receiving house dust extract		40
Improved	35	
Not Improved	5	
Antihistamine medication		19
Avoided reactor foods		22
Percentage improved		87%
Corrective surgery in this group		12

Sixty-seven patients with similar positive reactions did not receive the house dust extract. They were polled as to their beneficial results. Twenty-three reported no improvement; five reported slight improvement; one attributed improvement to change of climate; thirty-eight reported improvement. In this group, nine had corrective surgery. Of the twenty-three that reported no improvement, seventeen watched their diet and seventeen took antihistamines. Of the thirty-three that reported improvement, twenty-eight avoided reactor foods and twenty-seven took antihistamines for a variable period.

No. of patients not immunized with house dust extract		67
Improved	38	
Slight improvement	5	
Not improved	23	
Improvement attributed to change of climate		1
Antihistamine medication		27
Avoided reactor foods		28
Percentage improved		57%
Corrective surgery in this group		9

Patients in both groups were instructed to avoid if possible, the positive inhalants as dispensing with wool blankets, making bedrooms dust free as avoiding rugs and drapes, covering the pillows or resorting to rubber foam pillows. Many covered their mattresses. Two instances in the second group that showed sensitivity to animal dander, leaving the farm undoubtedly was a factor in their improvement. It is felt that the general awareness and the avoidance of known positive inhalants are a factor in the high percentage of improvement in the second group.

These results were evaluated on the patients' own judgment of improvement or non-improvement in their symptoms of nasal obstruction, discharge, irritation and sneezing. The polling was done during the winter months when, according to Randolph, sensitivity to house dust is relatively higher. Our observation with house dust extract in treatment of nasal allergy is in line with the statement made by Randolph that specific therapy with house dust extract is indicated only if a characteristic period of relief may be effected by administration of a given dose of house dust extract. This, in turn, is followed by a "wear off" phenomenon from which relief may again be obtained by another injection.

Although this present study does not infer that the immunilogical approach is the final answer to the problem of nasal allergy, it is an adjunct that will offer relief in a high percentage of cases. The fact that many still do not benefit from this approach should stimulate us to further study until all other avenues have been explored.

(Bibliography on Page 756)

SKIN ALLERGIES

ELMER M. RUSTEN, M.D.
Minneapolis, Minnesota

ALLERGY plays some role in all medical specialties. This clinical phenomenon is particularly important in dermatology because the reactions of various substances inhaled, ingested, or contacted can be often observed.

Immunology explains a few allergic reactions, with demonstrable humoral antibodies. Phylogeny, according to Kahn,[4] suggests that all tissue cells are active in the defense mechanism: one an immune gamma globulin fixed to the cell, the other circulating in the blood serum. There are evidences that the autonomic nervous system also influences our adjustment to internal, external, and environmental factors. This discussion will deal in the main with the practical approach to three common allergic dermatologic entities.

Definition of Allergy

Allergy is difficult to define. Its general usage implies an altered reaction to a specific substance with or without demonstrable antibodies. This response may be immediate or delayed. When used in its broad interpretation, it can explain in part or entirely many dermatologic diseases. Allergy, in its restricted interpretation, includes atopy, contact dermatitis, drug and serum disease, and hypersensitivity to infection.[3] Allergy and atopy are not synonymous. The latter is only one type of the former.

Mechanism of the Allergic Reaction

Nearly all substances, protein, polysaccharide, or chemical, can produce reactions in sensitized subjects. These substances, called antigens, produce reactions when combined with an antibody of a sensitized cell. The results of this union may be demonstrated in the circulating blood by passive transfer, and this is found in patients having seasonal pollenosis. Some reactions are assumed to be the result of intercellular union of antigen and cell-fixed, noncirculating antibody. This can explain, in part, contact dermatitis and some drug eruptions.

The immediate wheal or urticarial reaction is produced by a histamine-like substance. The delayed reactions, such as seen in patch tests, bacterial and tuberculin reactions, are not spontaneous or evanescent but fixed inflammatory types produced by the cells after a delay of hours or days. The severity of both of the former varies with the antigen, dose, degree of sensitization and rapidity of assimilation. Immediate reactions are seen in some patients with urticaria and dermatitis medicamentosa. This appears in seconds or minutes after administration of the antigen. The organ manifesting the symptoms is called the shock organ, and the antigens may produce their effect by being inhaled, ingested, conducted or injected. In the latter, lethal reactions can occur because there is no satisfactory method for removing the offending substance rapidly. The earlier the onset of symptoms after injection, the graver the prognosis. Immediate violent symptoms appearing after parenteral injections may result in death. If they appear in hours or days, the prognosis is better. The aforementioned is of particular importance in this era of frequent multiple, subcutaneous, intravenous and intramuscular inoculations.

Urticaria

Urticaria is an evanescent, pruritic, acute or recurrent inflammatory reaction of the skin. The presenting lesions are various-sized wheals, local or generalized, occasionally fixed. In the acute type, the findings and symptoms are of short duration, while moderate reactions have recurrent eruptions for hours, days, months, or years. In addition to the cutaneous manifestations, there may be symptoms of toxicity, fever, pain, headache, loss of consciousness, arthralgia, rhinitis, cough, dyspnea, wheezing, vomiting and diarrhea. When the attack is severe, these symptoms may progress rapidly, causing cyanosis, unconsciousness and death.

Etiology.—There are many causes of immediate reactions. Foods, drugs, antibiotics, chem-

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From the Division of Dermatology, University of Minnesota, H. E. Michelson, M.D., director; and the Department of Dermatology, Minneapolis General Hospital, C. W. Laymon, M.D., director.

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icals, bites, plants, pollens and physical agents are the most common. Most of these are affected by psychogenic mechanisms. In the single acute attack, most of the etiologic agents, contacted, injected, ingested, or inhaled, can be determined by history and have been described adequately in medical literature. The etiology of symptoms caused by common environmental and ingested materials is more complex. One of the most confusing is urticaria produced by foods, taken daily or several times a day.

Skin tests are of limited value and often misleading. Tests with extracts of bacterial proteins, antitoxins, fungi, and parasites are useful, while food tests with few exceptions are of no value. Positive skin tests with inhalants are of value if properly interpreted, and give pertinent information. Patch tests are useful in patients having a history of immediate urticaria to contacted substances. To prevent serious systemic reactions, the clinical history or rapidity of appearance and severity of symptoms must be interpreted accurately.

Treatment of Urticaria.—Symptomatic treatment of acute urticaria has been improved during the past few years by the use of antihistamine drugs. They control symptoms but do not cure. Many of these medications produce mild untoward, and occasionally serious, symptoms that have been described in detail by many observers. The choice of antihistamine drug and dosage depends upon the experience of the physician. Oral administration is most often used. Intravenous injection may produce dramatic effects, but may be dangerous. Immediate urticarial and systemic reactions, in the writer's opinion, are as well or better controlled by epinephrine given subcutaneously or intravenously in proper dilution and dosage. Oral ephedrine salts, autohemotherapy, foreign protein therapy, are useful in the conservative management of acute urticaria. The choice of drugs, dosage, and method of administration should not incur dangers more serious than this self-limited disease.

Recurrent urticaria caused by food in the daily diet can be diagnosed by abstaining from the suspected substances for five to seven days. If there is improvement in symptoms, eating of the foods, singly or all at one meal, should cause increased pruritus and whealing. Frequency, time of ingestion, quantity and preparation of foods are important. Allergic response to food is more dramatic and intense after abstaining from them for short periods. Trial of foods which have been avoided for weeks or months, are, with few exceptions, inconclusive.

The pulse rate diet test described by Coca[1,2] is of value in determining the cause of obscure or intermittent reactions. This is done by recording pulse rates before arising and retiring, before meals, and at thirty, sixty, ninety minutes after eating. Adding 12 beats to the lowest count is considered a normal maximum. Increase in pulse rate after specified diets indicates intolerance. In some patients, individual foods may be tested when pulse rate variations are irregular to the diet test.

After removal of the cause from the diet, environment—skin or intestinal tract—symptomatic treatment becomes less important. Psychosomatic mechanisms are considered by some competent observers[7] to be the "trigger mechanism" which precipitates the attack and is rarely the cause *per se*.

Contact Dermatitis

Contact dermatitis is a delayed type of reaction and appears as an inflammatory response to the superficial or contact layers of the skin. The excitant produces the eruption by direct contact, uncommonly hematogenous in origin. The inflammation comes after the second or subsequent applications of the same or closely related substances. The length of time for sensitization to appear is one to three weeks and the clinical sensitivity may last months or years. In about 25 per cent of patients, each succeeding attack results in more lesions, greater distribution and prolonged recovery. When an individual becomes sensitized, there are three phases of the disease: (1) period of incubation (length of time from contact to objective and subjective symptoms); (2) appearance and evolution of eruption; and (3) involution and recovery. These three stages in common contact dermatitis last about two weeks.

The presenting lesions of edema, erythema, and vesicles or blebs, may be mild or severe, local or generalized, depending upon the cause, amount and kind or reagin, extent of exposure, and degree of sensitivity. Generalized eruptions may result in exfoliative dermatitis.

Etiology.—Acute recurrent eruptions, mild or severe, are the antecedents of chronic contact dermatitis. In these patients, it is important to establish the etiology, by history, confirmed by patch tests. If the latter are not feasible, avoid contact with the suspected materials. The cause is generally in the environment and is often occupational and/or industrial. Approximately 85 per cent of industrial workers are treated by private physicians.[5] It is, therefore, reasonable to assume that a high percentage of dermatoses are treated by family doctors. When an employe in a given occupation develops a cutaneous eruption, it does not imply that the disease is caused by his work. Some patients are diagnosed industrial dermatitis after a casual review of the history and physical findings. The criteria for diagnosis should be more rigid, and based upon more than suspicion. The history of onset, occupation, location and morphology of the first lesions, recurrences (day, week or season), effect of trauma, irritants and perspiration, are important. The suspected material should, if possible, be confirmed by patch tests. When these are not used, or results are unsatisfactory, diagnosis can be made by having the patient abstain from work until the eruption involutes. A recurrence after returning to employment does not identify a specific cause but indicates there are one or more substances in his work responsible for the dermatitis, and change of occupation should be made. A few materials, mainly of the primary irritant type, cause "hardening" of the skin after repeated contact, need little therapy, and the employe need not change work. Rotation work has a higher incidence of industrial dermatitis than those having continuous daily contacts. Injuries, lacerations, or abrasions predispose to contact dermatitis. The onset is at the site of and follows directly the break in the intact skin and may be caused by substances previously contacted with immunity. It is therefore important that etiologic factors be established so they may be avoided early or change of work advised in patients having industrial dermatitis. The prolonged course of chronic eruptions has a dilatory effect upon the physical, mental and economic status of the worker.

Contact Dermatitis in the Atopic Patient.—Persistent recurring eczematous eruptions involving various parts of the body, most often the exposed areas, in the atopic individual offer difficulty in diagnosis and therapy. The history of onset is consistent with a diagnosis of contact dermatitis. The course, duration of weeks, months or years, and the morphological appearance suggest a diagnosis either of plaque eczema, nummular eczema, dermatophytosis, or localized neurodermatitis. A possible explanation of these lesions is that the patient has an "eczematous tendency," and many irritants and sensitizing materials precipitate the eruption but, because of "intrinsic causes," aggravated by external substances, the eruption persists months after the primary excitant has been removed. The majority of nummular types are worse in the cooler months, while those with dyshidrosis and hyperhidrosis are worse during times and seasons of increased perspiration. About one-third of these patients have had or are having seasonal pollenosis, asthmatic bronchitis, bronchial asthma, vasomotor rhinitis, atopic dermatitis (infantile eczema), and urticaria. When the eruption involutes after treatment or spontaneously, the so-called extraneous factors produce no untoward effects.

If the eruption began as a compensable industrial contact dermatitis, when does it become a noncompensable eruption? The patients who have been proved by factual information as compensible should be and are given every consideration by insurance carriers and continued treatment until recovery is satisfactory. Other individuals who have a dermatitis caused by occupation, based upon opinion and circumstantial evidence only, are much more difficult to evaluate. If seen a short period after the onset of their disease, accurate diagnosis is often possible. The tendency is to give the patient the benefit of the doubt, and this is unfair to the patient and the insurer. History, patch tests, and abstaining from work early in the disease are aids in determining causal relationship to occupation. After weeks or months, with or without therapy, the eruption is so altered that it is impossible to appraise accurately the relationship of the original disease and the presenting lesions. Careful dermatologic screening of applicants before employment can eliminate many of these poor risks.

Therapy of Contact Dermatitis.—Successful symptomatic treatment of contact dermatitis depends upon the understanding and choice of medications for a particular stage of the disease. The first attack responds satisfactorily to topical treatment. The course and duration of the disease is not altered. In the acute stages, wet compresses, drying lotions and baths judiciously used help alleviate symptoms. In the main, soap and water, greasy ointments and stimulating medications aggravate the eruption. Patients having industrial contact dermatitis (1) may be treated and allowed to work, and this is satisfactory in a few individuals; (2) may stop work and be treated while ambulatory; or (3) may be hospitalized and treated until well. The latter is the most successful and satisfactory, as therapy and contacts can be controlled. If the causative factor has been proved, and can be avoided, the worker need not change occupation. If there is a recurrence after resuming employment, change of occupation is mandatory.

Atopic Dermatitis

Atopic dermatitis is an allergic reaction in the blood vessels of the corium, with secondary epidermal changes. The presenting eruption may be mild or severe, and composed of erythema, papules, papulo-vesicles, and/or lichenification. The disease appears in infancy and childhood. The eruption, mild or severe, disappears in the majority of patients by the fifth year. A few have recurrent eruptions through adolescence and may persist for several years. Others have remissions after the first few years of life and recur at puberty. Areas of predilection in the infant are the face and scalp, occasionally generalized; later in life, the face, neck and flexor surfaces are affected. Seasonal exacerbation of the eruption is notable, as about 75 per cent have an increase of symptoms in the fall and winter months. Eighty per cent of patients with atopic dermatitis studied had intermittent or constant symptoms and findings of respiratory allergy.[6] Follow-up after five to ten years showed a shift in shock organs. There was a decrease or disappearance in the skin manifestations and an increase in respiratory symptoms. Complications of atopic dermatitis, such as secondary infection by pyogenic bacteria and virus, are not infrequent. Scarring is not caused by the eruption but is produced by external factors. Cataracts are a rare complication and occur most often in severe chronic disseminated eruptions. Psychosomatic stimuli have an unfavorable influence on the disease. Some observers believe this factor one of the most important causes; others assume it is an aggravating or precipitating mechanism as found in urticaria. The latter, in the writer's opinion, is the most tenable.

There is a group of older patients with so-called numular eczema, localized neurodermatitis, or plaque eczema on the hands, arms and legs, which morphologically appears the same as localized atopic dermatitis in infancy and childhood. The eruption is worse in the fall and winter, better in the warm months, is aggravated by soap and water, and is as recalcitrant to therapy as atopic dermatitis. These patients were discussed briefly under contact dermatitis in atopic individuals.

Etiology.—Positive skin tests, by multiple puncture, scarification or intradermal method, show many reactions. The accuracy of food tests is low—less than 25 per cent in infants and young children. This accuracy decreases with the age of the patient. Inhalant reactors, according to some observers,[8] are more important. Symptoms may be produced by inhaling the antigen, but more often the contact with the airborne substance sets up multiple, continuous, or intermittent, test reactions in the abraded, denuded, and fissured areas. This is confirmed by history. The most common of these is house dust. Danders, pollens, epithelials, and mold spores may react in a like manner.

Treatment of Atopic Dermatitis.—Local therapy, in principle, is the same as in contact dermatitis. The results of therapy depend upon the experience of the physician and choice of medication for the presenting stage of the disease.

The effect of foods, positive or negative by skin tests, on eczematous eruptions should be proven by omission for five to seven days. If, after the interval, there is improvement, the addition of these foods to the diet should cause reappearance or an increase of eruption and symptoms of pruritis, repeated on at least two occasions. This necessitates intelligent co-operation of the patient and detailed specific instructions and knowledge of food constituents by the physician. The pulse rate diet test of Coca may be used also.

(Continued on Page 824)

ALLERGY IN INFANTS AND CHILDREN

HAROLD F. FLANAGAN, M.D.
Saint Paul, Minnesota

ALL children, as well as adults, have some tissue alteration upon the introduction of a foreign protein. Certain childrens' and certain adults' tissues react abnormally, and these individuals are known to be allergic. This tissue reaction is especially noticeable in shock organs like the skin, the gastrointestinal tract, the organs of respiration, the eyes, the joints, and occasionally, the tissue of the nervous system. In fact, any tissue of the body may be affected.

The field of allergy or abnormal tissue reactivity is especially important to those entrusted with the care of the infant and child, for it is in this age period that sensitivity is first encountered; and since the only known cure for this disease condition is desensitization, whether accomplished by therapeutic measures or by the natural process of antibody neutralization as a result of repeated natural immunization, this is the age period in which it should be started. It is, likewise, the age period in which any preventive measures should be instituted in the potentially allergic child.

Clinically, allergic manifestations occur in the allergic individual after sensitization has taken place. There is some difference of opinion as to whether infants are actually born sensitive. Ratner[4] believes actual sensitization may occur *in utero*. The sensitization of the Rh-positive infant tends to lend some support to this belief. Studies on the cord blood,[8] however, have not shown any case in which reactions were obtained on passive transfer to normal human skin. It is well known that infants may develop sensitivity shortly after birth, usually in a period of weeks.

Studies by Schoss[6] and others have shown that the nonallergic individual absorbs antigens from the gastrointestinal tract in the same manner as does the allergic individual. Other students of allergy have shown equal capacities for the production of antibodies from a specific antigenic stimulation in nonallergic and allergic individuals. Allergic manifestations thus occur because of an unknown constitutional factor that appears to be inherited.

Vaughn[12] has estimated that about 10 per cent of the general population suffer from major allergic symptoms and another 50 per cent have minor clinical manifestations of allergy. From 50 to 70 per cent of allergic persons have a family history of allergy, whereas only 7 per cent of the nonallergic people have a family history of allergy. He estimates, and we have found approximately the same, that 75 per cent of all children with a bilateral family history and about 50 per cent with a unilateral family history will develop some form of clinical allergy. The greater the family history, the earlier the symptoms of allergy are likely to appear.

Various antigenic substances tend to cause rather consistent allergic responses in the senstive individual. Allergic manifestations are likely to vary at certain age periods in the affected child. Thus, the child who in infancy is sensitive to cows' milk will in all probability show skin manifestations. These symptoms frequently become apparent at about six weeks of age, possibly not until three months of age. At about fifteen to twenty months of age, the skin may become clear and the child may be relatively free of symptoms until two to five years of age, at which time he may develop evidence of respiratory allergy. True, we may have overlapping, where many different shock organs are involved at the same time. It is, however, not infrequent to see one shock organ after another become the site of allergic manifestations.

There are many factors besides age that alter the allergic response of the individual. Infections, with fever, may cause a marked improvement of the skin of the eczematous child. A similar infection in the asthmatic child may actually be the instigating factor. Glaser[1] states that infection accompanied by fever nearly always has a beneficial effect on an eczematous process, while in an asthmatic child, it may precipitate an attack of asthma. This is due most likely to a mechanical variation in the two shock organs. Dehydration, in eczema, is beneficial because it reduces edema. In the lungs, dehydration causes a thickening of the secretions to the point of formation of actual mucous plugs in the tiny bronchioles.

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Emotional disturbances have an untoward effect on the allergic child. It is no "old wives tale" that teething causes a flare-up in the allergic child. The neurodermatides that are clinically characterized by erythema and papular lesions in the cubital and popliteal spaces, as well as urticarial lesions, are frequently related to emotional upsets, such as insecurity in the home, a change of environment, and school problems.

Whether these reactions are the result of hormonal disturbances or not may be open to question. We do know that hormonal factors play a part in allergic response. This is shown in the pregnant woman. In these cases, the reactions vary from improvement to cure, to aggravation or precipitation of the allergic condition. It is not uncommon to see a mother whose skin allergies or pollinosis become much more severe when she is pregnant, while in other mothers there may be no evidence of allergy during their pregnancies, even though they are severely allergic when not pregnant. This reaction is not entirely emotional because it seems to occur similarly in each pregnancy.

Reactions to specific foods that occur only during the pollen season suggests very strongly the possibility of synergistic reactions. A doctor of my acquaintance could eat either shrimp or take a Manhattan cocktail without any allergic symptoms. However, when these two were combined at meal time, he had evidence of severe allergy. He developed urticaria, coryza, conjunctivitis and, occasionally, asthmatic breathing.

What happens to the allergic infant? Some authors state that most children "grow out of" their allergies. In a high percentage of allergic infants this is partially true. At least they seem to develop a higher threshold of reactivity. However, we know that the allergic manifestations change from one age period to another. Ratner[5] states that 50 to 60 per cent of allergic adults give a history of onset during childhood. In a series of 250 individuals with major allergies, 50 per cent had symptoms during the first year, 80 per cent by the fifth year, and almost 100 per cent by the eighth or ninth year. Stoesser[10] found eighty-four of 115 cases of eczema appearing before one year of age. He states that allergic coryza and hay fever may frequently begin in the pre-school child. In a study of 300 asthmatic children, O'Keefe[3] found 66 per cent had their onset before the sixth year of age.

Slesinger,[9] in a study of sixty allergic infants and children, felt that adequate allergic and local treatment did not prevent subsequent allergies, such as asthma and hay fever. He also found that most cases of eczema tended to clear by the fifteen- to eighteen-month age period. However, with a loss of their eczema, a good proportion developed inhalent and pollen allergies.

Some men believe that "fetal hiccoughs" may be on an allergic basis. Glazer[2] believes that colic in infancy is almost always allergic in nature. It is our observation that some cases of colic are allergic, but only a small percentage.

Schloss and Worthern[7] have shown that foreign proteins are absorbed in unchanged form through the gastrointestinal tracts of normal infants and adults, although this tendency is gradually lost with increasing age. These workers have demonstrated antibodies to these proteins, usually appearing only a few weeks after ingestion. With each food, antibodies are formed which, in the allergic child, may produce clinical allergy. The modern tendency to avoid breast feeding and the adding of foods at an early age is not a good policy to adopt in the infant with an allergic family history. Breast milk is the least "foreign" of all proteins, and foods taken by the mother, while they may produce antigens that may be transferred to the infant through the breast milk, are greatly modified. We suggest and advise breast feeding in all infants with a family history of allergy. Eczema is said to occur about seven times more frequently in infants fed on cows' milk formulas than in breast-fed infants.

If it is not possible to feed breast milk, cows' milk that is partially "detoxified" is advised. The antigenicity of cows' milk can be decreased by such procedures as boiling, acidification, or evaporation. Powdered milk appears to be more antigenic than evaporated milk. Allergies due to the whey portion of the milk are often relieved by the use of evaporated milk; those due to the casein fraction of the milk are not materially benefited by its use.

Goats' milk, soy-bean milk or amino-acid preparations are all useful in certain cases. We have encountered considerable difficulty with frequent and loose stools in infants fed on soy-bean preparations and getting the infant to take amino-acid preparations over long periods is sometimes quite difficult. Remember, a child with a little eczema or nasal stuffiness and yet well nourished is preferable to a child free of allergic symptoms and undernourished.

Egg sensitivity is very frequent during infancy, especially in producing skin manifestations of allergy. The antigen is almost always in the egg white, and yet the food value is mostly in the yolk. We always begin egg feeding with egg yolk and always advise giving it after the yolk has been hard boiled.

Fish, orange juice, spinach, asparagus and wheat are other frequent offending foods. These, with chocolate and nuts, are commonly associated with clinical evidence of allergy. Children often lose their clinical sensitivity to an antigen and ultimately ingest a previous offender without any untoward reaction. This is explained by the gradual increase in the circulatory antibodies to the point where they neutralize the antigen and prevent its reaction with tissue-fixed antibodies.

Respiratory tract allergies in the form of allergic rhinitis, or coryza, hay fever and asthma constitute a high percentage of the pediatrician's practice. The symptoms of frequent head colds, a chronic stuffy nose, or a dry hacking cough may often be allergic in origin. Foods and inhalants both play prominent roles in nonseasonal allergies, while pollens and inhalants such as house dust are more often the cause of seasonal respiratory symptoms. The nonseasonal respiratory allergic manifestations are most difficult to treat because the etiologic agents are more difficult to find. Stoesser states that the scratch test is seldom valuable in these cases. Van Dishoeck,[11] in a group of these patients, found that house dust, pollens, feathers, seaweed, tobacco, mites in kapok, cosmetics, coffee, chocolate, and nuts gave the most frequent positive skin tests.

Treatment of this group of cases is aimed at the removal of the offending allergens as far as is possible, desensitization with house dust, feathers, et cetera, and the control of infections as much as possible. Some of these patients are greatly helped by the use of antihistamines, and of these, we have found benadryl, pyribenzamine, and chlortrimeton maleate the most effective. Desensitization, or preferably hyposensitization, provides relief in a good percentage of patients where allergies are the result of house dust, feathers, and pollens.

The most valuable diagnostic aid in an allergic condition is a complete history. Skin tests and eosinophile smears and counts are useful and should be used in helping to confirm the diagnosis.

The treatment of all allergic manifestations in childhood must begin with an understanding between the physician and the parents that this is a chronic condition. Success in treatment will require patience and attention to detail. We are almost sure to have various allergic manifestations and when we think we have one condition controlled, we may find the disease evident in another shock organ. It is important for all to realize that while allergic conditions are discouraging and occasionally disabling, it is rare that they are severe enough to be fatal. If treatment is persistent and intelligent, the results of treatment are in most cases good.

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Health is today recognized as more than the absence of disease, and the field of health is not the exclusive concern of any one profession or specialty, whether that be medicine, social work, education, government or diplomacy. Health is an individual and—more importantly in the last half of the twentieth century—a social entity. Custom, usage and necessity have resulted in an undue worldwide preoccupation with disease. Personal health, national health and world health in terms of a balanced global ecology are the great challenges of the second millennium of the Christian Era. Editorial, *New England J. Med.*, May 17, 1951.

ALLERGIC ASTHMA

LOUIS E. PRICKMAN, M.D.
Rochester, Minnesota

FOR the purpose of orientation, some common examples of allergic asthma may be cited. These may include the farmer who is sensitive to horse dander and who experiences asthma when he curries a horse, or the housewife who has asthma as a result of the dog or cat in the house or the goat hair in her mohair-covered davenport, or the child or adult whose seasonal hay fever is complicated by asthma resulting from inhaled pollen. Many similar examples of allergic asthma could be mentioned, but only one more will be added for the sake of emphasis, and that is asthma which is due to a drug allergy, as is so dramatically observed in hypersensitivity to acetylsalicylic acid. A note about the relative incidence of allergic asthma may be in order. Allergic asthma is encountered much less frequently than intrinsic asthma or the so-called asthmatic bronchitis. Neurogenic asthma *per se* is relatively rare and is much less frequently seen than either allergic asthma or intrinsic asthma.

It is helpful to think of allergic asthma as a protective mechanism which warns the patient to avoid the specific antigen or antigens to which he is sensitive. For example, there is no better treatment for asthma due to horse dander than to avoid horses or the emanations from horses. Likewise, the best treatment for hay fever is to go to an area free of the pollen to which the patient is sensitive; and no treatment for dog and cat asthma can approach that of getting rid of these animals and vacuuming carefully where they have been. The patient who experiences asthma when he takes acetylsalicylic acid should meticulously and forever avoid this drug, which commonly causes the most serious type of allergic asthma and has even caused death.

The causes of allergic asthma are usually not too difficult to run down. With the aid of a careful history, some skin tests and shrewd detective work on the part of the patient and his doctor, the cause will usually be determined, provided the asthma really has an allergic basis. The chief difficulty lies rather in the fact that, by the time the patient presents himself for investigation of his asthma, additional causative factors or complications have appeared, and what started out as a simple allergic asthma due, for example, to cattle hair, has become complicated by a superimposed infection in the accessory nasal sinuses or bronchi, and, to add to the confusion, the asthma may also have so disturbed the patient's rest, sleep and breathing that there are superimposed neurogenic factors to contend with as well. Each complication must be recognized, evaluated and treated appropriately. Antiallergic therapy alone is bound to be disappointing under such circumstances.

Strictly speaking, there is no cure for asthma. Certainly, there is no medication that cures asthma, although there are many remedies that can be used effectively to relieve the symptoms of asthma. It is true that many persons seem to lose their asthmatic tendency as they become older, but this can rarely, if ever, be said to be the result of any type of medication. Until some method of changing an allergic person to a nonallergic person (if there is such a person) is found, or until it is learned how to remove the inherited or acquired tendency of certain patients to have asthma when others do not have it under identical provocation, the best therapy will be directed toward removing the causes and the complications of the patient's asthma. This often is easier said than done, but it is the only goal worth striving for.

Allergic asthma that persists over a period of weeks or months invariably becomes complicated by a secondary chronic bronchitis, in the same manner that pollen hay fever is frequently complicated near the end of the season by rhinitis and sinusitis, which may prolong the nasal symptoms well into the winter, long after all pollen has disappeared from the air. Allergic asthma may be complicated by colds, bronchitis, and not rarely by a stenosed bronchus which interferes with aeration of a portion of the lung, which in turn results in some degree of atelectasis and retention of secretions. In such cases, antiallergic measures alone fail completely to influence the course of the asthma until the

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From the Division of Medicine, Mayo Clinic, Rochester, Minnesota.

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proper treatment of the complication is carried out.

Hyposensitization by using increasing increments of the antigen to which the patient is sensitive works best in the treatment of asthma which is due to pollens. About one of every three patients with hay fever has an associated pollen asthma. It is curious that a properly administered course of pollen therapy will usually control pollen asthma, even when the nasal symptoms of hay fever are not well controlled in the same patient. Hyposensitization should be used, therefore, in cases of pollen asthma in which patients are not able to go to an area free of the pollen to which they are sensitive. Generally speaking, hyposensitization with other antigens, such as house dust, animal danders, feathers, molds, foods, has been disappointing to the patient in most instances. Whenever possible, therefore, the offending antigens should be removed from the patient's environment, or, if possible, the patient should be removed from the offending environment.

The antihistaminic drugs which have been effective and helpful in allergic conditions of the upper part of the respiratory tract, such as hay fever and vasomotor rhinitis, have been generally disappointing in the treatment of asthma. Mild uncomplicated allergic asthma, however, can usually be helped by the administration of antihistaminic drugs. Severe asthma, on the other hand, and asthma which is complicated by bronchitis, as so frequently happens, cannot be controlled by antihistaminic drugs alone, since the mechanism causing asthma is no longer due to a simple release of histamine from the cells, which the antihistaminic drugs have the property of blocking.

Any list of symptomatic remedies for asthma must start with nature's own, namely, epinephrine. Given, as nature does, in frequent small doses, epinephrine will rarely fail to give prompt, though temporary, relief. More prolonged relief may be obtained by aminophylline given intravenously with dextrose, or by rectum, or by ephedrine given orally. There are also numerous synthetic sympathomimetic drugs which may be used in place of epinephrine and ephedrine as occasion demands.

The effectiveness of cortisone and ACTH in controlling allergic asthma has been very exciting and gratifying, and, like epinephrine, they can be thought of as utilizing a natural mechanism of the body to suppress asthma. These hormones, however, have a Dr. Jekyl and Mr. Hyde "personality," because they can retard or suppress beneficial immune reactions that are needed for protection. At the same time, they suppress the undesirable immune reaction which is evidenced by allergic asthma that is not wanted. One example will suffice. There is now experimental and clinical evidence to suggest that the immune mechanism which keeps tuberculosis under control is interfered with or suppressed under certain conditions of cortisone therapy. It now seems decidedly unwise, therefore, to administer cortisone to a patient who has both asthma and tuberculosis. Other important and necessary immune mechanisms may also be suppressed by this hormone, especially if treatment is prolonged. It would seem at this time that, when cortisone or ACTH is used in the symptomatic treatment of asthma, it is safer when used over brief periods of two or three weeks. A course of treatment should be given only as often as recurrences demand. Helpful as these and other new remedies have been in the control of asthma, the best treatment is still to search for the causes of the patient's asthma and remove them, together with any complications that may be present. Thus the need for cortisone, ACTH, antihistaminic drugs, aminophylline, epinephrine, expectorants and similar preparations in the treatment of allergic asthma will be greatly minimized.

NASAL ALLERGY

(Continued from Page 747)

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GASTROINTESTINAL MANIFESTATIONS OF ALLERGIC DISEASE

C. N. HENSEL, M.D., F.A.C.P.
Saint Paul, Minnesota

FIRST of all it should be noted that "food allergy" and "gastrointestional allergy" are not the same. In "food allergy" the gastrointestinal tract is merely the portal of entry of the allergen into the blood stream, the allergic reaction taking place elsewhere in the body.

For instance, the ingestion of egg may produce a migraine headache in one person, an attack of asthma in another, and urticaria in a third.

However, by the term gastrointestinal allergy, we mean that the alimentary canal is the "shock organ" and that it is there that the noxious allergen meets the sensitized tissue cell that results in the allergic reaction.

Such allergic reaction in the gastrointestinal tract results in smooth muscle spasm, local capillary dilatation—increased transudation of serum through the capillary walls, hypersecretion of mucous glands and accumulation of eosinophiles at the site of the reaction.

The clinical symptomatology of such tissue and vascular reactions may be either acute and violent or chronic and recurrent.

In the acute type there is pain, nausea and vomiting that come on soon after the ingestion of the noxious allergen.

The vomiting is violent and severe, the noxious allergen is rejected, and in the course of a few hours the storm has passed and the alimentary canal is normal again.

Such an episode usually follows the eating of some unaccustomed food, and after a few such experiences the patient becomes aware of the offending food, omits it from his diet and does not consult a physician.

The second type of gastrointestinal manifestation of allergic disease is the chronic or recurrent type in which the patient has not eaten any unusual food but continues to experience, day after day, episodes of abdominal pain, either steady and mild or severe and cramp-like, plus nausea and vomiting or diarrhea and even bloody stools.

So severe may be the symptoms that cholecystitis, peptic ulcer, perforated viscus or intestinal obstruction may be suspected, and occasional operations have been performed only to have the symptoms recur.

Admittedly the diagnosis of gastrointestinal allergy is not easy; in fact it is often very difficult.

Therefore, since the symptoms of alimentary tract allergy are not specific, one must proceed with great caution.

It is necessary, first, to obtain a very careful and detailed clinical history in which search is made for a history of previous other allergic symptoms in the patient or in his relatives.

Second, one makes a complete physical examination.

Third, there are the necessary laboratory studies with complete blood counts and differential smears, analyses of gastric contents, et cetera.

And finally, there are x-ray studies of the upper gastrointestinal tract, the colon and the gall bladder.

The finding of a gastritis, of cholecystic disease or of a mucous colitis does not rule out gastrointestinal allergy—in fact, some authors believe that in an allergically susceptible individual the local inflammation in the gastrointestinal tract tends to precipitate the allergic reaction at the inflammatory site.

On the other hand if all of the above examinations have been negative and no organ disease or pathology has been revealed, we must still think that the symptoms may be due to alimentary tract allergy.

In such cases skin tests are not reliable as diagnostic aids, so we have recourse to the food diary, a process by which records are kept of the foods eaten each day and comment is made at the bottom of the page as to the presence or absence of symptoms suggestive of allergy.

If symptoms should appear whenever a certain food is consumed, this is a clue; this food is omitted and results noted.

Another popular differential diagnostic method are the elimination diets devised by Rowe of Oakland, California, and described in his book on *Food Allergy* published in 1931. He begins by eliminating wheat, eggs, milk and all fruit except

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lemon, grapefruit and pears, and allows rice and vegetables (not commonly known to be allergenic), lamb and olive oil.

This is known as Diet No. 1, and his patients are kept on this for ten days, which time he believes is essential to eliminate former noxious allergens from the system.

Then he proceeds to add new foods, one at a time, and instructs these patients to eat freely of the new food and watch for symptoms.

If symptoms do not arise, this new food is accepted as nonallergenic and is incorporated into the regular diet.

New foods are continually added until symptoms from some food or foods appear. Then this food or these foods are withdrawn from the diet, a period of abstinence is observed and then, one at a time, the suspected foods are readded to the diet.

Should symptoms now reappear and disappear on withdrawal of the specific food, we have the proof that the individual is hypersensitive to this food.

Then, what can be done? One can omit the food entirely for a time and then try eating it occasionally, say once a week or once in ten days. This may work where the patient is sensitive to only one food, but usually these patients with gastrointestinal allergy are sensitive to a number of different foods, and reintroduction of these foods becomes a difficult problem.

Furthermore, such patients living on a restricted diet and consuming repeated quantities of the permitted foods tend to become sensitive to these permitted foods.

Patients are rarely able to detect sensitivity to foods eaten at least once a day.

Some years ago Rinkel of Kansas City recommended a new approach to the detection of specific food sensitivity.

He selected several major articles of diet, based upon the individual's eating habits, that could be potentially sensitizing.

He had the individual avoid eating a particular food for four days before the test. Then the patient presented himself, fasting, and was given a feeding of the food to be tested, and such feedings were repeated at one-half-hour intervals for three additional feedings.

If no symptoms appeared after the first feeding or some symptoms appear and are intensified by subsequent feeding, then one has good grounds for incriminating such a food as allergic.

When this test is applied to the first six or eight major allergenic foods in the patient's diet, the physician becomes aware of the extent to which foods are producing allergic symptoms. According to Rinkel, wheat and corn and corn derivatives are of chief allergenic concern.

Various Allergic Alimentary Symptoms

According to Rowe, canker sores on lips and the inside of the mouth can come from specific foods.

Grapes and cantaloupe have given immediate puckering in the mouth and abdominal distention, while canker sores have appeared in twelve hours and lasted two weeks.

A forty-year-old woman had canker sores in the pharynx, especially with her menstrual periods, for many years. She also had recurrent sick headaches and symptoms of toxemia and fatigue. All symptoms disappeared with the elimination of wheat, milk, eggs and fruit from her diet.

A woman, aged sixty, had recurrent attacks of deep canker sores, plus belching, some sour stomach and constipation. All her symptoms were relieved by the elimination of wheat, eggs, milk and fruit from her diet.

Rowe himself had canker sores from bananas and apples. He stated that a piece of banana held between his tongue and lips produced no reaction; however, when a minute piece of banana was swallowed, a canker sore developed that did not heal for two weeks.

Rowe asks: if food can produce such soreness in the mouth, is it not reasonable to assume that it can produce similar lesions in the gastric and intestinal mucosa resulting in disturbed peristalsis?

He reports a patient who developed burning in the mouth and tongue and blisters on the lips from shellfish and peaches.

He found a patient so sensitive to sweet potato that she was unable to swallow any of it because of local edema.

He reports the case of a young woman with bronchial asthma who would vomit for an hour and a half after every meal. Elimination of milk and eggs from the diet relieved both conditions.

He reports the case of a man who was operated upon elsewhere for cholecystitis. At operation the gall bladder appeared normal, but drainage was established. However, his symptoms of abdominal distress persisted, and he consulted Dr. Rowe who found that this patient also suffered from hay fever and asthma. These symptoms led to an allergic investigation, and he was found sensitive to wheat. Removal of wheat from his diet caused the disappearance of symptoms, but when he again ingested wheat, symptoms suggesting gall-bladder disease reappeared.

He reports the case of a woman sensitive to milk who would have five to fifteen stools after taking a few drops of milk.

He reports also the case of a woman who had a diarrhea for six months, and on investigation she had no free hydrochloric acid in her stomach. Administration of hydrochloric acid brought no relief, but the elimination of milk (to which she was sensitive) stopped the diarrhea.

Dr. Rowe cites a case reported by Cohen in 1934 of a patient with mucous colitis lasting for many years. For a time this patient was treated in a tuberculosis sanitarium and given heavy feedings of milk. He stated that the elimination of milk from the diet stopped the colitis and resulted in a gain of 50 pounds in weight.

Duke of Kansas City, one of the early pioneer workers in the field of allergy, published some interesting case histories on alimentary allergy in his textbook published in 1925.

Case 1.—Emaciation caused by hypersensitiveness to foods. A patient with alimentary allergy was sensitive to almost all the common foods. Because of abdominal pain, nausea and vomiting and fear of pain on eating she had become reduced in weight to less than 70 pounds.

During her illness, gallstones were found and removed, without relief.

Several weeks after operation, when the patient was on the verge of death from starvation, she was found to be sensitive to practically every common food except meats and fruits. On a diet of meats and fruits she gained weight at the rate of nearly a pound a day, and at the end of two months she weighed 130 pounds.

Several times during these two months, attempts were made to add some vegetables, cereals, milk and eggs to her diet, but always with a recurrence of abdominal pain, nausea, and vomiting that would last for several hours.

Case 2.—Alimentary reaction followed by appendicitis. A man, aged twenty-five, ate shad roe at lunch, two to five times a week, for several months.

After moving to another locality he did not eat shad roe for a period of about two years. Then he became subject to occasional attacks of severe epigastric pain (nonradiating) developing fifteen minutes after a meal and lasting for from three to five hours. Occasionally the pain was accompanied with nausea and vomiting.

Several attacks were followed by tenderness over the region of the appendix with slight fever and leukocytosis lasting about a week. The condition was diagnosed recurrent appendicitis. At operation a few adhesions were found about the appendix and several concretions in its lumen.

Similar attacks of epigastric pain occurred after the removal of the appendix, which differed from the preoperative attacks only in the fact that they were not associated with tenderness in the lower right quadrant of the abdomen. Finally it was discovered that the attacks occurred invariably after eating shad roe, and when the shad roe was eliminated from the diet, no such attacks occurred. This sensitiveness persisted for more than ten years but gradually became less severe in degree.

At the present time ingestion of shad roe causes discomfort in the abdomen and nausea, but no severe pain.

An intracutaneous injection of an aqueous extract of shad roe produced a typical hive-like reaction, 0.5 cm. in diameter.

Cooke's textbook, *Allergy in Theory and Practise,* in the chapter on "Allergy of the Digestive System," gives two interesting case histories.

Case 3.—A Jewish school girl, aged sixteen years, had suffered from recurring attacks which her mother stated began when she was two weeks old.

In early life these attacks came about once a month, and for the previous year they came about once a week, and for the prior three months they occurred every Friday.

There was a prodromal period of uneasiness, anorexia, abdominal discomfort lasting from four to fourteen hours (some of the mild attacks did not go beyond this stage).

Next there was a crescendo period with rapid increase in symptoms of anorexia, abdominal colic, pain referred to shoulders, hips or feet, and prostration. There was fever, rapid pulse and leukocytosis.

The maximum temperature was 104°; pulse was 140 beats per minute, with a leukocyte count up to 28,000. A single differential count showed no increase in eosinophiles.

The abdomen was rigid and tender as is found in general peritonitis, but varying in location from side to side. Marked salivation was present, as well as nausea, belching, occasional vomiting, the vomitus containing free hydrochloric acid.

This stage lasted from eight to sixteen hours and was followed by a period of recovery, with rapid subsidence of pain, of fever and of leukocytosis within seventeen hours.

She then felt well, had a voracious appetite, and within a few hours regained the 4 or 5 pounds lost in the attack. Gastric analysis showed slight hyperchlorhydria.

Prior to my seeing her an exploratory operation had been done at Johns Hopkins Hospital and her appendix removed without effect on her attacks.

Because of the suspicion that there might be an allergic basis for these attacks, intradermal skin tests were performed with ordinary food stuffs, such as milk, eggs, cereals, meats, vegetables and fruits, and all were negative. Also a family history for allergies was negative.

However, since it was still suspected that this might be an allergic reaction, milk, eggs and meats were removed from the diet and the attacks stopped.

Subsequently milk was given on two separate occasions, and the prodromal abdominal symptoms appeared at the end of two to three days.

After these experiences the patient could not again be induced to take milk.

The patient was under observation for the next nine years, and when last seen, in 1925, had been entirely free of all attacks.

She never touched milk and was not willing to repeat the experiment. Her two children showed no allergies up to that time.

Up to this point in my paper I have reviewed the standard text books and articles in the literature on allergy and have endeavored to give you the current thought on the problem of alimentary allergy and its differential diagnosis.

I was interested to note that much of the reporting on alimentary allergy appeared between 1920 and the late 1930s and that very little has been written on this subject since 1940.

In 1948 at an annual meeting of the American Academy of Allergy there was a symposium on "Psychosomatic Factors in Allergic Disease." This is the first time in all the years that I have attended the meetings of the allergy society that discussions on the role of the emotions in producing or aggravating allergic symptoms formed part of the scientific program.

In the *Journal of Allergy* for November, 1950, there is published a symposium on "Food Allergy" which was part of the program of the sixth annual meeting of the American Academy.

A very thought-challenging paper was that by Drs. Graham, Wolff, and Wolff on "Changes in Tissue Sensitivity Associated with Varying Life Situations and Emotions; Their Relevance to Allergy."

The authors presented further evidence on three points:

1. That man reacts adaptively or protectively in similar ways to a variety of noxious stimuli.
2. That man may react to threats or symbols of assault as though they were assaults; and
3. That consequently it may be difficult to ascertain what aspects of a total situation are really relevant to the observed reactions of the individuals.

Therefore, ingested chemical agents and foods may sometimes take on special significance not dependent upon their chemical nature or physical structure."

The authors studied the cutaneous vascular reactions in patients with urticaria:

There were seventeen men and thirteen women who had repeated attacks of hives or whose present attack had lasted three weeks or longer.

It was found that there was an almost invariable relationship between an attitude of a particular kind and attacks of urticaria.

The patients cosidered themselves wronged or injured and believed that they could do nothing to improve the situation.

No correlation was discovered between exposure to allergens and attacks of hives.

The authors continued:

In an experimental setting and following suitable control observations, significant events, known to have been associated, in the past, with outbreaks of hives were brought up for discussion and dwelt on for several minutes.

The experiments concluded with a period of strong reassurance and diversion.

During the entire experiment measurements of cutaneous vascular reactions were carried out.

All of the patients were seen to flush when topics of significant personal concern, evoking resentment, were discussed.

Measurements revealed that at such times there was a decrease in tonus of the minute vessels (capillaries and venules) and dilatation of the arterioles.

In five cases, urticarial lesions appeared during stressful interviews.

It was possible to show in a healthy man that loss of minute vessel tone which follows a blow, will also take place if a blow is merely threatened.

Food Sensitivity.—It is conceivable that foods by virtue of their chemical or physical structure may give rise to antigen-antibody reactions and subsequent clinical manifestations of food sensitivity.

The evidence for and against the occurrence of such reactions is difficult to evaluate.

It has been maintained that migraine headache is frequently a manifestation of food allergy.

The difficulties involved in reaching such a conclusion are illustrated by the following experiment:

Four able physicians . . . themselves migraine patients, were the subjects. They were of the opinion that they could produce migraine headaches in themselves by eating chocolate in minimal amounts.

They were given a set of lettered sealed envelopes, with the key to the contents held in the laboratory and unknown to the subject; each envelope contained either 8 gm. powdered chocolate or 8 gm. lactose in eight black capsules, the two sets of capsules being indistinguishable in appearance.

All were instructed to eat no chocolate during the experiment.

It was found, in these subjects, that headaches sometimes followed the chocolate and sometimes the lactose, but most commonly attacks occurred without reference to ingestion of capsules.

Case Report

Case 1.—A fifty-year-old woman, whose chief complaints were pressure in her head, poor thinking and memory, vision not clear, dizziness, abdominal cramps, abdominal bloating and hives, was studied.

The symptoms occurred within ten to twenty minutes after ingestion of milk or milk products. These attacks had been present for eleven years after a cesarean section.

The patient had never liked milk but had taken a great deal of it during her pregnancy and had gained 60 pounds.

Soon after being put on a reducing diet milk elicited the symptoms.

Skin tests were positive to milk, tomatoes, peaches, peas, pork and lobster, but symptoms were only associated with the ingestion of milk.

On the occasion of the experiment, balloons were introduced into the stomach and duodenum. After a preliminary control period had established the rate and amplitude of contractions, 50 c.c. of whole milk were introduced into the fundus by the stomach tube without the patient being able to observe what was being administered.

She was told that she was being given water as a preliminary testing procedure.

There was no change in the motility pattern and the patient exhibited no symptoms.

Two weeks later the experiment was repeated. This time the patient was given 50 c.c. of tap water, but she was told that milk was being introduced.

Following this suggestion she developed nausea and abdominal discomfort associated with definite changes in the duodenal motility pattern.

In the same symposium there was a paper on "Milk Allergy: A Survey of its Incidence, Experiments With a Masked Ingestion Test," by Mary Hewitt Loveless from the Department of Medicine of Cornell Medical College.

She sent a questionnaire to 142 physicians, members of the American Academy of Pediatrics or the American Academy of Allergy.

Their replies showed that they were attending 180,000 individuals, and of these, 4,260 gave positive cutaneous reactions to milk, an incidence of 2.3 per cent.

There were an additional forty-nine pediatricians who did not perform skin tests to diagnose food allergy. They reported that clinically the incidence of milk hypersensitiveness amounted to 1.5 per cent.

These low figures are astonishing since Rinkel and Rowe, by means of a food diary, elimination diets and ingestion tests, arrive at incidences considerably higher.

Loveless selected eight patients on the basis of their histories for or against the existence of allergy towards milk and gave them milk in masked form in conjunction with control, or placebo, feedings.

There were positive findings in three individuals whose manifestations were judged to be psychogenic rather than allergic.

Placebo feedings given two of these subjects, clarified the diagnosis.

Case 4.—History of nausea, abdominal colic ten minutes after milk, fluid retention, marked edema, poor vision, memory, and thinking in several hours and occasionally hives.

He was given 50 c.c. of milk by stomach tube with the suggestion that only water was being given. The result was no reaction.

Later he was given water by stomach tube with the suggestion that it was milk. The result was positive, i.e., reproduction of his alleged symptoms to milk.

This patient was allergic to the "idea of milk" but not to milk allergens.

Loveless found that intracutaneous skin tests with milk erred in the direction of giving false positive reactions.

She cites the need for re-evaluation of the symptoms of allergy and suggest the need for omitting such neurotic symptoms from the allergic syndromes as fatigue, drowsiness, headache, chilly sensations and pains or drawing of muscles, and the development of more scientific methods of diagnosis of alimentary allergy.

Comment

When we realize that the emotions can produce vascular changes in the body tissues, identical with those produced by the antigen-antibody reaction, we now have a new approach to the study of all allergic reactions, namely, how does the individual react to his environment and its stresses?

As someone has said of patients with peptic ulcer, "It is not what you eat that causes your stomach distress, but 'it is what is eating you' that counts."

In the preparation of this paper the standard text books on allergy have been freely consulted, as well as the *Journal of Allergy* for November, 1950, which contained a symposium on "Food Allergy."

PSYCHOGENIC FACTORS IN ALLERGIC DISEASE

M. G. FREDRICKS, M.D.
Duluth, Minnesota

THE practice of dermatology is a constant reminder of the direct effect of psychogenic factors on allergic diseases. Simple dermatoses, not complicated by emotional responses, are the exceptions rather than the rule, and even a poison ivy dermatitis will frequently be prolonged by the distress of the patient to an admittedly miserable affliction.

Discussing psychogenic factors, we are concerned with the emotional tone of the patient rather than with his intellectual responses. The physician in his everyday practice is prone to think of psychogenic and psychosomatic problems as mental diseases in which the thinking is not properly controlled. We still have not completely rid ourselves of thinking of the troubles of the patient with functional disease as being in his mind. There is a tendency to forget that mental life includes unconscious as well as conscious processes. Feelings, rather than conscious thinking, create the problems for which many patients seek our help. Often the little issues in life precipitate emotional crises. The patient's attitude toward these often minor issues of life may make the difference between health and psychogenic disturbances.

As a specific example of how emotional tone, feelings and attitudes in everyday life affect allergic diseases, consider the young housewife and mother with an eczematous contact dermatitis. She is naturally frustrated by the limitations imposed upon her necessary activities such as just keeping a little child clean. She removes her hands from soap and water by the proper use of gloves, applies the usual ointments, but still may find that this is not enough to remedy her problem. In this case, insight, reassurance and sedation given by her physician will greatly facilitate her recovery.

Chronic urticaria illustrates well the psychogenic factors in allergic diseases, as it is usually the result of emotional excitement and nervous fatigue. Most of these patients are not "neurotic" and they usually, at least by my standards, are average people in the various walks of life. Their understanding of the mechanism of psychogenic factors, the use of sedative therapy, and effecting some change in their attitude towards their everyday problems, is the most effective treatment program in my experience.

Atopic eczema is helped more by the patient's insight into excessive emotional tension and by sedation than by antihistaminic drugs. Even in infancy, knowledge on the part of the parents of the role played by tension, and sedation, constitute a major part of the therapy in this disease. In my experience, atopic dermatitis in the 'teens and later in life is more frequently the problem of psychogenic factors than allergy, although admittedly atopic eczema is basically an allergic disease. Kepecs and co-workers[2] have demonstrated that the rate of exudation in hypnotized patients with atopic eczema and urticaria increases in emotionally tense subjects, and decreases when through suggestion they are relaxed.

Holmes and co-workers[1] state that "the nasal reaction is a part of a broad biologic protective pattern of defense." They describe pathologic changes of nasal mucosa with edema of the stroma, dilatation of the vascular and lymphatic channels, and hyperactivity of the glands (all quite the same as the changes observed in allergic rhinitis), associated with such emotions as anxiety, hostility, frustration and resentment. Wolff and co-workers[6] demonstrated that by manipulations in interview situations they could "turn on" and "turn off" patients' attitudes, and then show that changes in the mucous membrane came and went at the same time.

Rackemann[3] states that "since the attack of asthma which is caused by physical or emotional strain is quite the same in its signs and symptoms as the attack caused by allergy, one can assume a similar mechanism." He adds that there is little doubt about psychic disturbances as a secondary mechanism to aggravate allergy and that the circumstantial evidence is increasing to show that these mechanisms can be primary in allergic diseases. Stevenson and Wolff[5] cite the case of a twenty-nine-year-old man with bronchiectasis in whom it was found that during stressful life situations, the bronchial mucous secretion increased

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Presented in the Symposium on Allergy at the annual meeting of the Minnesota State Medical Association, Rochester, Minnesota, May 2, 1951.

markedly, sometimes as much as eightfold, and again diminished when the stress was over.

The relationship of psychogenic factors to allergic conjunctivitis was well illustrated to me about a month ago. The diagnosis on the patient had been made by an ophthalmologist in July, 1946, and again in July, 1947. The patient, a boy now eight years old, was referred to me by a second ophthalmologist for intradermal tests because of an exacerbation of allergic conjunctivitis two weeks before. His eyes had been all right since October, 1950. Intradermal tests* to the inhalants performed April 2, 1951, were insignificant except for a 2-plus reaction to alternoxia. At the time of the first visit with the patient and his mother, it was learned that although the boy was normal by his mother's or by my standards, he was keenly aware of sibling competition from a younger brother. The brother had rather unusual musical talent and thereby won more than his share of the parents' attention. Discussion of this problem with the mother and mild sedation achieved marked improvement within ten days.

When one peruses the current medical literature, he finds frequently erotism, mother fixations, sadism and masochism identified as etiologic factors in hay fever, asthma, eczema and hives. Although it is admitted that serious emotional disturbances do play a part in these diseases and may enter into all our lives at some time to some degree Selye[4] has given us a respectable and understandable reason for the ills of the average patient. He points out that in all humans adaptability and resistance to stress are fundamental prerequisites to survive; that every vital organ and function participates in them, and that diseases of adaptation can result from excessive stress. Selye further notes that anything that causes stress endangers life, unless it is met by adequate adaptive responses; conversely, anything that endangers life causes stress and adaptive responses. He states that the basic reaction pattern to stress is always the same, irrespective of the agent producing the stress.

Although we know that psychogenic factors may be a cause or contributing factor in allergic diseases, are we fully utilizing this knowledge in the better management of our allergic patients? I do not believe that we are. To be of help to the patient, we must talk in terms that the patient understands clearly. Terms such as "feelings," "stress," "tension," "inner-excitement," "being keyed up," and "learn how to become more relaxed inside" are completely understandable and acceptable, and of help to many patients in finding a way to handle the everyday stresses of a highly competitive society. One can simply explain that the life of normal people always does involve some struggle; that insecurity, be it vocational, social or financial, is always with us; and that these stresses in life do affect vital organs and functions to some degree as long as we have any spirit within us. A discussion of psychogenic factors in allergic disease should always be a part of the "briefing" of every patient with allergic disease. Many patients will then volunteer what their particular problems, either big or small, may be; and having done so, a better relationship will exist between patient and doctor, and a therapeutic interview thereby will be accomplished. There is, however, no simple and easy way out in the management of emotional problems in our allergic patients or in any other patient. The physician's willingness to listen, his sympathetic and interested objectivity toward the patient will accomplish a great deal. When one sums up the total time required to help patients by using therapeutic interviews in addition to other good accepted treatment procedures, one will usually find that the total time required in treating these patients will actually have been shortened. Better medicine will have been accomplished, and this should be and is one of our main goals at all times.

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A GUIDE FOR INDUSTRIAL HEALTH PRACTICE IN MINNESOTA

INDUSTRIAL health practice is a type of medical, surgical and nursing practice which is likely to increase in the State of Minnesota, and in order to give it recognition and avoid confusion and misunderstanding in the minds of doctors, nurses, industrialists, labor groups, members of the teaching profession and others, who singly or in groups are interested in the health and welfare of workers, it seems advisable at this time to clarify and define the purpose and scope of industrial health practice.

Industrial health practice has long been recognized and endorsed by the American Medical Association and the American College of Surgeons. Doctors and nurses practicing industrial medicine and nursing have nationwide organizations such as the American Association of Industrial Physicians and Surgeons, and the American Association of Industrial Nurses, Inc.

Those rendering health services in industry are assisted by industrial hygienists, industrial engineers, and medical and technical consultants of private and governmental agencies among which are such national organizations as the American Conference of Governmental Industrial Hygienists, American Industrial Hygiene Association, American Association of Industrial Dentists, American Public Health Association, and the Division of Industrial Hygiene of the Federal Security Agency, U. S. Public Health Service.

In preparing this outline of industrial health practice, the standards of procedure approved by the American College of Surgeons, and the recommendations of the Council on Industrial Health of the American Medical Association, and the American Association of Industrial Nurses, Inc., have been largely used.

Broad Objective

The broad objective of industrial health practice is to promote good health and well-being among employed groups of people. Within this objective is the promotion of good health through the application of emergency treatments and preventive health measures known to medical science, and the application of sound technical and engineering measures to control the environment of the worker so as to reduce the hazards of employment which directly or indirectly affect his health and well-being.

These objectives can be accomplished within the framework of ethical medical practice without sacrificing the essentials of the normal doctor-patient relationship, and without furthering the cause of socialized medicine.

This outline is not intended to be an exhaustive manual dealing with all details of a health service, but is intended as a guide which incorporates the essential features of a good industrial health program.

Scope of Health Service

The American College of Surgeons in a survey of approximately 2,000 medical services in industry, reported the following as the objectionable features most frequently observed:

1. The indiscriminate use of first-aid kits.
2. Many physicians in charge of industrial medical dispensaries have neglected to provide written "Standing Orders" or regulations to which dispensary attendants may refer. Verbal instructions do not provide adequate and infallible instruction.
3. A number of industrial establishments, both large and small, still maintain the practice of employing physicians on a call basis, for emergency service only.
4. One of the most consistent defects is found in the system of records maintained.
5. (Lack of) periodic health examinations.
6. Perhaps the most consistent defect in medical service in industry is the apparent failure of the physician to acquaint himself with general plant sanitation, with special reference to plant inspections for the purpose of making personal observations and subsequent recommendations.[1]

While it is realized that small industrial organizations or plants do not require as extensive medical services as do the larger ones, the general health practices outlined below are generally applicable.

This *Guide for Industrial Health Practice in Minnesota* has been prepared jointly by the Committee on Industrial Health of the Minnesota State Medical Association, the Division of Industrial Health of the Minnesota Department of Health, and Minnesota Nurses in Industry, Inc.

It has been approved by the Council of the Minnesota State Medical Association, the State Board of Health, and the Board of Directors of the Minnesota Nurses Association.

The features of a good health service have been extensively discussed by the Council on Industrial Health of the American Medical Association, the American College of Surgeons, the American Association of Industrial Physicians and Surgeons, and the American Association of Industrial Nurses, Inc. The general features outlined below are those advocated by these national organizations.

1. A definitely organized plan for the medical service.
2. A definitely designated staff of qualified physicians, surgeons, nurses and attendants, with one physician in charge of the service.
3. Adequate emergency, dispensary or hospital facilities. Properly controlled first-aid kits in plants too small for a dispensary.
4. Preplacement, periodic and special physical examinations made only by a doctor of medicine. Preplacement examinations should be used to assist the employer in placing an employe in a job which he is physically and mentally qualified to do. In transmitting to the employer the required information as to the physical and mental capabilities of the employe, it is best to use a code or classification of work capacity which will serve the purpose for correct placement, and at the same time retain the confidential nature of the specific findings.
5. Prompt and efficient care of all industrial injuries and occupational diseases.
6. Prompt but reasonable first aid and advice for employes suffering from non-industrial injuries and illnesses while on duty. For further professional care such cases should be referred to their own private physician or the proper community health agency.
7. Adequate medical records, including physical examination records, accessibly filed in the medical department under responsible medical supervision. Statistical summaries and analyses of the injury and illness experience should be made periodically.
8. Utilization of such measures as are recognized to be practical and efficacious for the elimination or control of all health hazards.
9. Supervision and periodic inspection of plant sanitation.
10. Education of the employe in accident and occupational disease prevention and personal hygiene.
11. An active participation in rehabilitation programs.
12. An ethical and co-operative relationship with the family physician.
13. An arrangement for adequate facilities for the transportation of ill or injured employes.
14. An arrangement for use of competent medical and surgical consultants and hospital services.

In 1946 the American College of Surgeons outlined briefly the functions of the industrial nurse.[2] In 1949, the American Association of Industrial Nurses drew up a more comprehensive outline of the industrial nurse's duties, which includes those mentioned by the American College of Surgeons. This outline is called "The Industrial Nurse, Her Duties and Responsibilities." It was distributed in 1949 by the Federal Security Agency, Public Health Service, and is reprinted here in its entirety.

DUTIES AND RESPONSIBILITIES OF THE NURSE IN INDUSTRY

1. Give emergency care for all occupational injuries as authorized by written standing orders signed by the physician in charge.
2. Give treatment for occupational injuries and illnesses under the supervision of the physician in charge.
3. Give emergency care for non-occupational disabilities and see that the patient is referred to his own physician for further treatment if necessary.*
4. Organize and maintain a clean, smooth running, and efficient health service unit.
5. Keep currently informed about plant processes and materials. This can be accomplished by frequent tours through the plant and conferences with department and division heads, foremen, purchasing agents and others as may be indicated.
6. Participate in preplacement, periodic and annual examinations of workers.
   (a) Interview workers to explain the purpose of the examination, procedures and their significance.
   (b) Obtain and record personal and occupational history of the worker.
   (c) Complete as much of the examination as is approved by the physician. This may include making routine tests and measurements such as height, weight, hearing, visual acuity, urinalysis, dental inspections, taking blood pressure, pulse, temperature and respiration, and obtaining specimens for serological examination and other laboratory tests.
   (d) Assist physician with physical examination as necessary and chaperone women workers.
   (e) Confer with worker to interpret medical findings, plant policies for health and welfare, and to assist him in making plans for his necessary care.
   (f) Make periodic inspections for symptoms and indications of occupational disease, as of employes working with benzene, lead or other toxic substances.
   (g) Interview workers in connection with return-to-work permits to assure their fitness for work.
7. Participate in the plant health and safety educational program.
   (a) Integrate health instructions in the training program for new employes.

(b) Do some health and/or safety teaching during each service to the employe.

(c) Do follow-up for correction of remediable defects.

(d) Give health supervision to workers with chronic conditions, and see that they periodically consult their private physicians.

(e) Assist in the rehabilitation of employes with physical handicaps.

(f) Keep workers informed regarding current local health problems and health programs through the use of posters, pamphlets, movies or slides and/or group talks as indicated.

(g) Contribute timely health articles to plant publications.

(h) Promote and assist in the organization of classes to meet specific needs such as personal hygiene, nutrition, etc.

(i) Assist in placement of workers according to physical and mental fitness.

(j) Analyze reports for evidence of conditions needing improvement.

(k) Attend meeting of safety committee.

(l) Assist in the promotion and (if necessary) teaching of first-aid courses for employes from each department.

(m) Promote the proper use of protective equipment and, when indicated, demonstrate care of such equipment.

8. Assist with plant sanitation.

(a) Know the requirements of state factory laws that pertain to illumination, ventilation, cleanliness, eating facilities and provisions for adequate toilets as well as for rest, wash and change rooms.

(b) Present suggestions to management of all phases of plant environment that affect the health and morale of the workers.

9. Participate in plant welfare activities.

(a) Interpret (or encourage) group sick-benefit, hospitalization and life insurance plans.

(b) Counsel workers on all health and welfare problems of concern to them.

(c) Assist in the development of recreation programs as indicated.

(d) Promote and assist in securing and maintaining adequate eating facilities for all employes.

(e) Co-operate with all community health and welfare agencies to the end that the employes have adequate help in meeting their problems of non-occupational as well as occupational origin.

10. Maintain, in confidential files and regularly analyze, employe records and health service reports.*

(a) Maintain an individual record for each employe seen in the health service unit.

(b) Record every service rendered to each individual employe on his individual record, and use this record as the basis for health counseling.

(c) Make compensation reports according to plant policy.

(d) Submit daily, weekly, or monthly, and annual reports to plant physician and/or management; and interpret such reports as evidence of accomplishments or as needs for further activities.

11. Keep abreast with developments in science, in industry and in her profession through:

(a) Active membership in professional and civic organizations.

(b) Reading of professional and industrial magazines.

(c) Participation in study groups.

(d) University study when possible.[5]

In certain instances the activities of the industrial nurse may parallel the activities of a public health nurse. In these instances standards of conduct which apply to the public health nurses should also apply to the industrial nurse. These are found in MINNESOTA MEDICINE (August, 1948) under the title, "A Guide for Public Health Nursing Agencies Seeking to Establish Policies and Standing Orders." This guide was recommended by the committee on Public Health Nursing, and approved by the House of Delegates, Minnesota State Medical Association, in June, 1948.[8]

It is recognized that in carrying out her designated activities the industrial nurse as well as the industrial physician will be brought into close co-operation with such "inplant" activities as absentee control, accident prevention, hiring and transfer of personnel, committee discussions of health policies, and into close co-operation with such officials as safety engineer, personnel manager, personal relations officer, health and welfare counselor, etc.

It is further recognized that the nurse in industry has a singular opportunity for health counseling, and that her interest in the health of workmen may extend beyond the plant environment into the homes of the workmen and bring her into close association with public health and welfare personnel and organizations operating in the community.

Home visits by the industrial nurse or industrial physician may be necessary in the diagnosis and treatment of occupational diseases or in connection with absentee control. "Home visits for other than industrial injuries or occupational diseases are not made as a rule by the plant physician, except by request and where the company or employes' benefit association provides an all-inclusive service."[3] The industrial nurse on a home visit "should be able to make the patient generally comfortable, and to determine if medical aid should be called. "Assistance may be rendered in gaining admission to a hospital, in solving family problems, or, if the family is destitute, in providing relief through the company or through welfare organizations."[3]

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* In regard to items 3 and 10, it is understood that the nurse is acting in accordance with the written standing orders of the physician in charge.

It is recognized that the health service under certain circumstances may participate in research projects for the advancement of medical science, providing the information obtained is freely available and not gained for the purpose of commercial exploitation.

It is recognized that a group of employed workmen is a fruitful field for the propagation or application of health measures being promoted by state public health departments, such as tuberculosis control, venereal disease control, cancer and heart disease control, mental hygiene, etc., and co-operation of the health service with such agencies is recommended.

It is recognized that the good industrial physician who is thoroughly familiar with the working conditions and specific hazards of his plant, is in a better position to diagnose occupational disease than his fellow practitioners who do not have access to the plant. For this reason, outside physicians who are called upon to diagnose or treat occupational disease should work closely with the plant physician.

It is recognized that it is desirable that such things as pre-employment or preplacement physical examinations, certification of physical fitness for transfer to a different job, certification of physical fitness to return to work after disability, which vitally concern the safe operations of the plant, and fundamental services such as first aid and emergency care, be handled by the plant health service. These activities are of such a nature that they do not materially interfere with the normal patient-doctor relationship.

It is recognized that some of the activities advocated for an industrial health service are duplications of services offered by private practicing physicians. Although in many ways it may be desirable that all occupational conditions and conditions having a possible occupational causative factor be processed through the plant health service it should be clearly understood that the employes cannot be compelled to use the plant health services but may freely elect to seek treatment from their private physicians for either occupational or non-occupational conditions.

If further clarification of the rights of an injured workman are desired, Chapter 176 of the Minnesota Statutes for 1949 should be consulted.

This outline does not recognize the treatment of non-occupational conditions as falling within the scope of industrial health practice, but it is recognized that an investigation may be necessary to rule out an occupational cause. The American College of Surgeons expresses the consensus in this way:

> The purpose and license of industry is not to practice medicine. If for no other reason than a sense of fair competition, industry should go no further in the actual treatment of non-industrial injuries and illnesses than to give reasonable first aid and advice to those on duty. Reasonable first aid may be defined as care given to patients who, in the doctor's opinion, will recover after two or three treatments, and who ordinarily would not consult an outside doctor. Such a policy appears to be reasonable and satisfactory because:
>
> 1. This permits the worker to remain on the job.
> 2. It promotes good will between the medical department, management, employes, and labor.
> 3. The outside practitioner is not deprived of patients, as these employes would not stop work and accept a pay loss to go to him. If further diagnosis and treatment are necessary, they should be referred to their own physician.[3]

General physical examinations when performed for whatever purpose should be carefully done and fully recorded in keeping with the best principles of medical practice. The confidential nature of the findings and records should be honored. If it is necessary to transmit the findings to a third person the reason should be explained to the examinee and his specific consent obtained.

The results of the physical examination should be interpreted to the examinee. Where non-occupational conditions are found which should be treated the patient should be advised to have them treated by his own physician or dentist. If the physical examination uncovers an occupational condition which requires treatment, the condition should be explained to the patient. He may be told that the health service has facilities and personnel to treat him, where such is the case, but it should be recognized that he has a perfect right to go elsewhere for treatment if he wishes.

If the employe elects to have treatment by his private physician for any condition discovered by the plant health service it is generally advisable to supply the worker's physician with full clinical and laboratory details noted, if such is the wish of the patient.

If an employe is suffering from a physical handicap which makes it inadvisable for him to continue any longer at work, at the job he is doing, every effort should be made to place him in a position where he can serve in spite of his handicap. If because of the peculiar hazards of the plant and the nature of the disability it is impossible to place him satisfactorily he should be frankly advised to seek other work which he is capable of doing. While the plant doctor must protect the health and safety of the employes as a whole he should, so far as possible, be a champion of the individual workman who is handicapped.

It is recognized that it is the responsibility of the plant health service to make detailed plans for handling large numbers of seriously injured workers in the event of disaster, such as an explosion, fire, air raid, or other enemy action. These plans should be drawn up in co-operation with the State Director, Civil Defense Agency, and integrated with the civil defense plans of the local community.

Standing Orders

It is recognized that in the health service where the physician in charge is on duty only part time, the industrial nurse will be called upon to act alone and take responsibilities not ordinarily assumed by nurses. To provide for such emergencies it has been the practice for the doctor in charge to draw up and sign rules of procedure which have been called standing orders. The doctor's written instructions for routine procedure might better be called a guide, since they do not have the status of written orders for a specific patient. Standing orders should not be worded in such a way that following them would require a nurse to make a diagnosis.

The guide for the industrial nurse should include the usual course of procedure as outlined in the standard first-aid textbook, and such additional directions as the plant physician wishes to include.

It is suggested that in formulating "standing orders" that publications on this subject by the American Association of Industrial Physicians and Surgeons, American Association of Industrial Nurses and the Industrial Health Council of the American Medical Association be used as a guide.

Personnel

The personnel of a health service should consist of an industrial physician who serves full or part time, a registered nurse who serves full or part time, and as many more doctors, nurses, technicians, clerical help and consultants as are necessary for the size of the group being served, and in keeping with the hazards of the plant.

The doctors on the staff should come up to the standard set by the American College of Surgeons for qualifications of an industrial physician, which are as follows:

> The physician or surgeon who expects to serve an industrial organization, either as the plant physician or as medical director, should be actively interested in industrial medicine and traumatic surgery and should possess the following qualifications:
>
> 1. He should be a graduate of an accredited medical school and licensed to practice in the state or province.
> 2. He should have at least one year's internship in an accredited hospital.
> 3. He should have some experience in general practice either prior or supplemental to his duties at the plant.
> 4. He should have a general knowledge of each plant operation, industrial relations, including employment methods and problems, transportation, housing, recreation, educational facilities and methods, and employes' benefit plans.
> 5. He should be qualified to determine by examination of employes their physical and mental fitness for work.
> 6. He should have a knowledge of the ingredients and of the toxic or disease-producing qualities of all the materials and processes used in the industrial organization which he serves.
> 7. He should have a knowledge of health education, of sanitation, of working conditions, of accident and occupational disease-prevention methods, and of preventive health measures in general.
> 8. He should have a knowledge of the diagnosis and treatment of occupational diseases.
> 9. He should be competent in the diagnosis and handling of all traumatic lesions which he undertakes to treat.
> 10. He should be versed in procedure for follow-up and rehabilitation.
> 11. He should have knowledge of the workmen's compensation laws.
> 12. He should have knowledge of an efficient medical record system and of statistical methods.
> 13. He should have an unbiased industrial viewpoint and a confidence-inspiring personality.
> 14. He should realize that his first duty should always be to the workman whom he examines or treats.
> 15. He should like people.

From the above outlined requirements, it is evident that industrial medicine is in itself a specialty. A physician may be skilled in medicine or surgery, and yet fail to satisfy the administrative or health preservation requirements of an industrial organization. Without such special interests and qualifications, the general practitioner or plant physician cannot expect to serve industry adequately as a medical director.[2]

If more than a first-aid service is required, a fully qualified registered nurse should be employed who has had additional training in industrial nursing, public health, home visiting, counseling or related nursing fields.

For small plants operating a first-aid service, the attendant in charge should possess a current first-aid certificate.

Types of Health Service

The following types of health service are recognized:

1. One in which the medical director is a full-time employe of the company and takes full responsibility for the health service, including hiring and discharging of health service personnel through the co-operation of the personnel department.

2. One in which the medical director is a part-time employe of the company and obligated to spend a portion of his time at the plant in the service of the company, and who takes full responsibility for the health service including hiring and discharging of health service personnel through the co-operation of the personnel department.

3. One in which the practicing physician is not really an employe of the company, but is used by them from time to time as a consultant on a fee-for-service basis. In his capacity as consultant, he may be called upon to advise on the conduct of the health service, to draw up and sign a guide for the nurse and advise on the hiring and discharging of health service personnel, without having any administrative authority over the health service. In other words, in this type of health service, the company is free to take his advice or not.

4. A first-aid service in which a room is set aside for this purpose with a practical nurse or trained first-aid attendant in charge full time. In this type of service there should be a designated doctor on call, but he does not take any responsibility for the first-aid care, but may on occasion give advice. In this type of service *only first aid* can be conducted, and that according to usually accepted first-aid procedure. The attendant in charge of such a service has no authority to do more than first aid.

5. A first-aid service with one or more first-aid boxes or cupboards in charge of a trained first-aid attendant who is ordinarily otherwise employed. In other respects it operates the same as type 4, but with fewer facilities.

Administrative Comment

It is recognized that a medical doctor cannot conduct a good health service unless he is given adequate authority. It is therefore recommended that a medical director refuse to accept employment in a health service except as a consultant only, unless he is given full responsibility for the health aspects of the service, including the hiring and discharging of medical, nursing and technical personnel attached to the health service.

Experience has shown that a better health service is usually maintained in those plants where the medical director reports directly to top management, or in the absence of a medical administrator, the nurse has ready access to top management.

It makes for better functioning of the health service if a manual is drawn up for the guidance of the doctors and nurses, outlining how their activities relate to plant procedure and policies.

Ethics

The usual principles of medical ethics should apply in the practice of industrial medicine.[6]

The following relationships between industrial and private physicians were outlined by the Industrial Health Committee of the State Medical Society of Wisconsin. They in turn frankly acknowledge that their sources of material were publications of the American Medical Association and the Lake County Medical Society, Lake County, Indiana. These principles are reproduced below and are recognized as good medical ethics in the practice of Industrial Health.

1. Pre-employment examinations.
   Acceptable medical practice would dictate the wisdom of:
   (a) Making available to the family physician of the examinee a full report of the examination, if the examinee indicates a wish that the report be transmitted to a physician of his choice.
   (b) Willing consultation with the examinee's personal physician when differences of opinion arise regarding medical findings.
   (c) Refraining at all times from directing the examinee to any one practitioner to whom the examinee should report for correction of defects discovered in the examination. Free choice should be adhered to in practice as well as in principle.

The following rules of conduct should be adhered to in the interests of sound medical practice:

(a) It is not ethical for an industrial surgeon, while caring for an industrial injury or disease, to urge the patient to have a concomitant and coincidental disease treated by himself at the worker's expense.

(b) Once a case of questionable liability to the employer is diagnosed as being of non-occupational origin, the patient is to be referred to his personal physician for further care.*

(c) A physician or surgeon is not to use his industrial affiliation as a direct means of gaining a private practice among plant workers. This includes solicitation, low fee arrangements, and insinuation of reprisals against workers who insist on care by physicians of their choice.

While the above rules directly apply to physicians engaged in industrial practice, there are like obligations of those who serve as non-industrial physicians coming in contact with cases involving industrial care:

(a) If a private physician suspects the diagnosis of an occupational disease or illness, he should, with the patient's permission, communicate the information to proper plant medical authorities.

(b) If differences of opinion exist as to the compensability of medical and surgical conditions, the private physician, with the permission of the patient, should confer with the plant doctor.

(c) Statements to workers that treatment offered through the plant physician are not in keeping with sound medical practice (in the opinion of the examining physician) accomplish nothing constructive and should be withheld until there has been a consultation with the plant physician to ascertain all the pertinent facts.[7]

In the practice of industrial nursing the nurse is also bound by the ethics of her profession.

Summary

This plan for industrial health practice is intended as a guide to the practice of industrial health in the State of Minnesota. It does not purport to be complete in every detail, and is subject to revision. It is believed that the principles outlined herein are applicable to the practice of medicine among the members of any group of people having a common employer who will pay for the health service.

It is recommended that further details of the functioning of health services be obtained from the industrial physician, the Division of Industrial Health of the Minnesota Department of Health, or the state or local medical societies. The Division of Industrial Health provides the following free services within the state:

1. Advice on medical and nursing services in industry and other employed groups.
2. Advice to industrial physicians on special occupational disease problems.
3. Laboratory facilities for special examinations of blood, urine and other biological materials in cases of suspected industrial poisoning. Laboratory analysis of materials used in industry to determine the potential health hazards associated with their use.
4. Engineering studies of the working environment to evaluate the health hazard associated with exposures to toxic dusts, fumes, gases, vapors and mists and such physical factors as radiation, noise, temperature, humidity, ventilation and illumination. Recommendations for the control of health hazards found are a part of these studies.
5. Distribution of literature and information on industrial health matters.

In carrying out its program, the Division of Industrial Health co-operates with industry, industrial physicians, industrial nurses, labor unions, the Industrial Commission, insurance carriers and other public and semi-public agencies concerned with the health and well-being of employed persons.

Information obtained in investigations made by the Division of Industrial Health is not admissible as evidence in any action at law or in any action under the Workmen's Compensation Act (See Minnesota Statutes, 1949, Section 144.34).

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* It should not be inferred here that the employe is denied free choice of physician for occupational conditions.

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A NEW GROOVED ENUCLEATION IMPLANT

CHARLES HYMES, M.D.
Minneapolis, Minnesota

THE recent trend toward facial plastic surgery is proof that people have a great many anxieties concerning their physical appearance. When the indications are such that an eye must be removed, there is always considerable resistance on the part of the patient, primarily because of fear of how such surgery will affect his appearance. If he could be assured that the artificial eye would resemble to a close degree his remaining eye and would move in unison with it, he would anticipate the operation with much less anxiety.

The objective of all methods of enucleation is to create a socket with a movable stump which will impart to the prosthesis some degree of movement, reduce the sinking-in appearance of the upper lid, and prevent sagging of the lower lid. To this end, numerous types of muscle cone implants have been used in the recent past with consistently poor results.

Of the older methods of enucleation, the one which gives a fair cosmetic result is the Mules operation, in which a glass or gold sphere is sewed into the intact sclera after evisceration of the contents of the eyeball. However, the objection to this operation is the danger of sympathetic ophthalmia, particularly when the operation is performed on atrophic eyes and those with retained foreign bodies. Furthermore, this operation cannot be performed in the case of a severely traumatized eye or when a tumor is suspected.

Since 1945, the writer has devised and experimented with a number of muscle cone implants, including a tunneled implant similar to that of Allan, as well as with the so-called integrated or partially buried implant, similar to the Cutler implant.

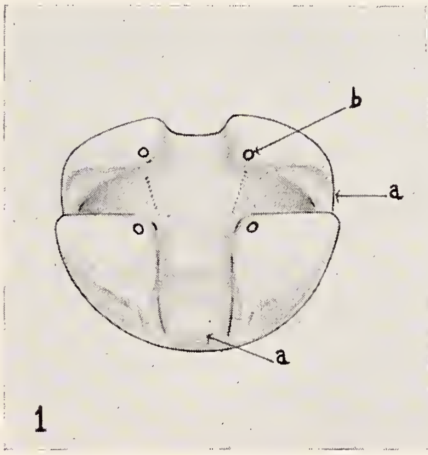

Fig. 1. Grooved hemispherical implant. (a) Grooves are 1 mm. in depth anteriorly and 2 mm. in depth at circumference of implant. (b) Perforations for stay sutures.

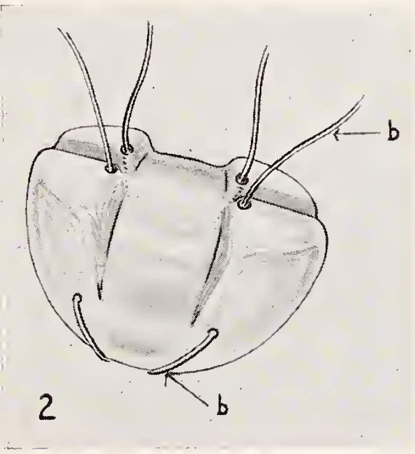

Fig. 2. Stay sutures are threaded diagonally from the posterior surface forward.

The immediate cosmetic results with the use of the partially buried implant both as to the appearance of the lids and the movement of the artificial eye are all one could ask for. Unfortunately, these results are not lasting, and sooner or later the implant is extruded in a very large proportion of cases. This has been the experience of most of the ophthalmologists reporting on the use of this type of implant.

When one observes the socket of an eye where a gold or glass sphere has been completely buried and the corresponding recti muscles sutured to each other, one observes a fair degree of movement of the stump. However, very little of this

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From the Department of Ophthalmology and Otolaryngology, University of Minnesota Medical School.

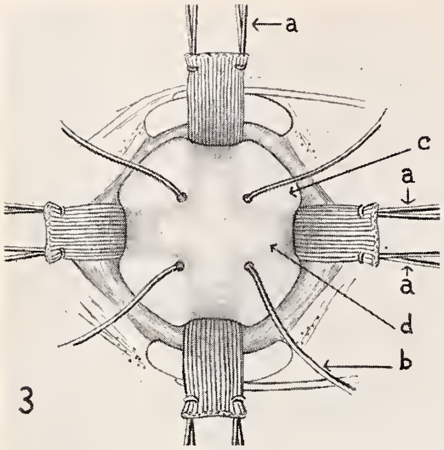


Fig. 3. The implant in position within the muscle cone. (a) Sutures retract the four recti muscles. (b) Stay sutures. (c) Anterior view of implant. (d) Grooves for recti muscles.

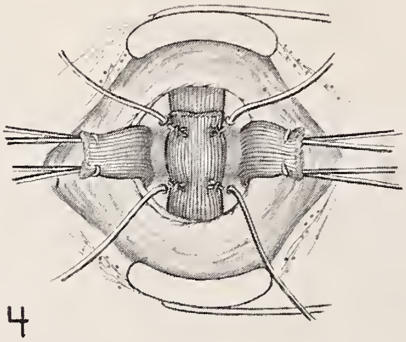


Fig. 4. The superior and inferior recti muscles have been overlapped about 4 mm. and sutured edge to edge with previously placed mild chromic retraction sutures.

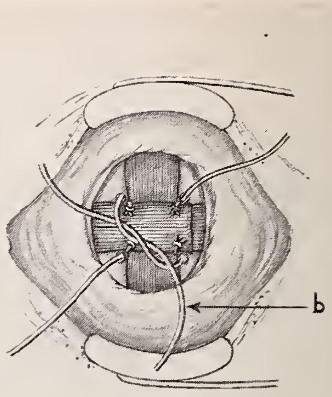


Fig. 5. The horizontal muscles have been overlapped 4 mm. and sutured edge to edge. (b) Stay suture in process of being tied.

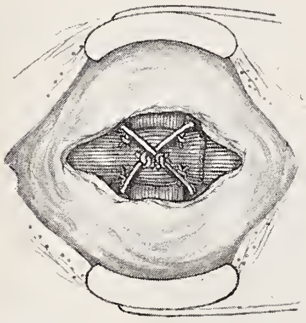


Fig. 6. The two stay sutures have been tied. Stay sutures which are not tied tightly fix the implant to the recti muscles.

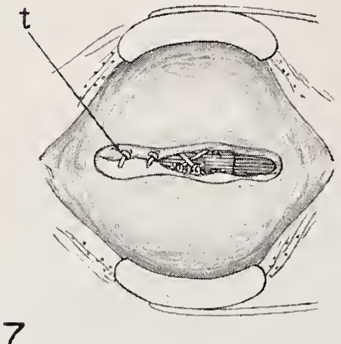


Fig. 7. (t) Edges of Tenon's capsule are sewed together with six to seven mild chromic catgut sutures.

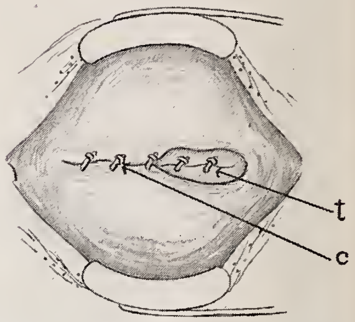


Fig. 8. (t) Tenon's capsule has been closed, and edges of conjunctiva (c) are brought together with interrupted sutures or a running suture using fine black silk.

movement is imparted to the prosthesis as the convex anterior surface of the stump slips beneath the artificial eye. In the case of the Mules operation, in which a glass or gold sphere is buried within the sclera, though the appearance of the eye is satisfactory, the horizontal movements are quite limited for the same reason.

It occurred to the writer that a completely buried implant which would create a stump with a flat anterior surface, together with an artificial eye with a flat posterior surface, would offer the best possibility for obtaining good movement of the prosthesis. It was with this idea in mind that the writer devised both a tunneled and a grooved hemispherical implant. The latter is herein described.

The implant is essentially a hemisphere made of a plastic material (methyl methacrylate resin). Its flat anterior surface has a diameter of 21 mm., while its posterior spherical portion has a depth of 12 mm. Over its anterior surface are grooves for the recti muscles (Fig. 1). These grooves, vertical and horizontal, merge with each other anteriorly where they are 1 mm. in depth and 5 mm. in width, becoming 2 mm. deep at the circumference of the implant. The grooves gradually become shallow and merge with the posterior spherical surface. Four through and through perforations for stay-sutures traverse the implant just outside the grooves (Fig. 2).

Technique

After undermining the conjunctiva and Tenon's capsule in the usual manner, the four recti muscles are stripped back for a distance of approximately 15 mm. from their insertion. Two

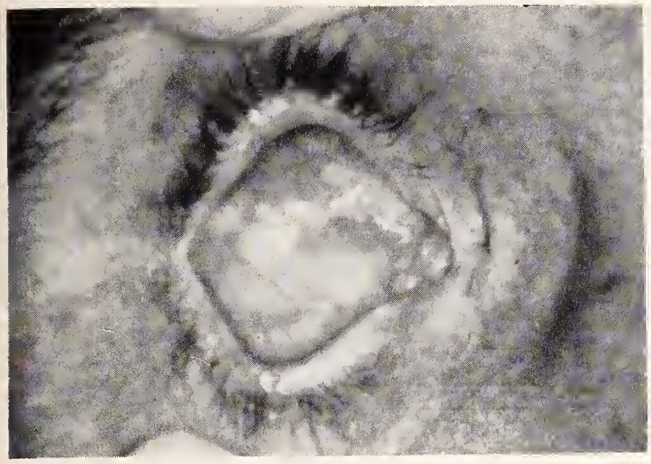


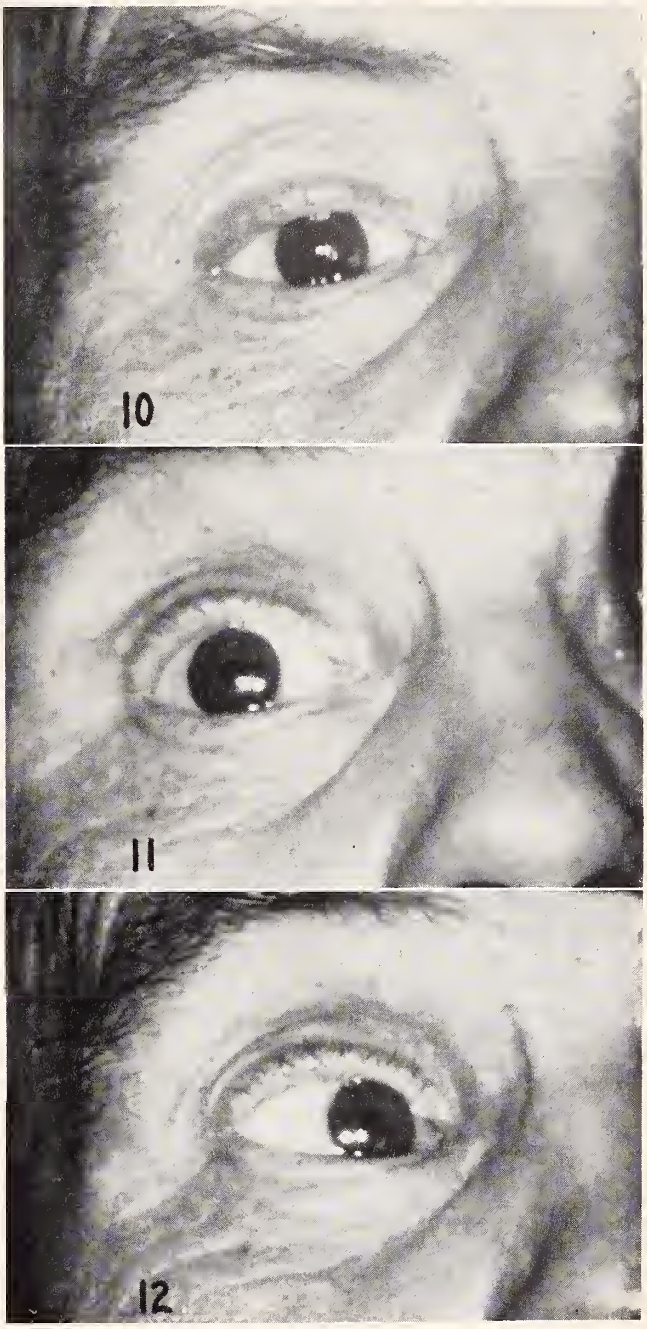
Fig. 9. Appearance of the conjunctival cul-de-sac four weeks postoperatively. The conjunctiva overlying the implant presents a practically flat surface.

mild chromic catgut sutures are lock-stitched to the edge of each rectus muscle close to its insertion. The muscles are severed from the eyeball and retracted (Fig. 3). The optic nerve and the oblique muscles are severed, completing the enucleation. Bleeding is controlled before placing the implant in the muscle cone.

The catgut sutures are threaded through the four perforations in the implant diagonally from the posterior spherical surface forward, and the four loose ends are retracted after placing the implant with its flat surface anteriorly into the muscle cone (Figs. 2 and 3). These oblique sutures serve to fix the implant to the overlying recti muscles.

The vertical muscles are overlapped approximately 4 mm. and sutured edge to edge using the lock-stitched sutures previously placed (Fig. 4). The horizontal muscles are similarly overlapped and also sutured with the previously placed sutures (Fig. 5). The horizontal muscles are not sutured to the vertical muscles. The obliquely placed sutures are now tied over the recti muscles, the upper nasal strand being tied to the lower temporal, and the lower nasal strand to the upper temporal (Figs. 5 and 6). These stay sutures are tied snugly without cutting. They serve to fix the recti muscles to their respective grooves and prevent the shifting of the implant on its axis.

The edges of Tenon's capsule are sutured horizontally with six or seven interrupted mild chromic catgut sutures (Fig. 7). The conjunctiva is sutured edge to edge with fine silk using a running suture (Fig. 8). A pressure bandage is applied.



Figs. 10, 11 and 12. The prosthesis in position in the forward direction of gaze, in convergence, and in partial external rotation. Movements of the artificial eye improve as time goes on.

About four weeks postoperatively, the prosthetic eye is fitted into the socket. The prosthetic eye which is made flat posteriorly has a small lip on the nasal side to fit under the caruncle, its flat surface corresponding to the flat surface of the conjunctiva overlying the implant.

The immediate results with the use of the grooved implant are most gratifying. Cosmetically, there is much less sinking of the upper lid than when a glass or gold sphere is used, and there is no sagging of the lower lid. The motility of the artificial eye both vertically and horizontally is very satisfactory, particularly the short eye movements which I like to refer to as the "conversational" eye movements. Movements of the artificial eye improve as time goes on. In this regard, it goes without saying that the artificial eye must be made correctly, both with regard to the size and coloring of the iris button and its proper positioning and the size of the prosthesis (Figs. 9, 10, 11 and 12).

If in the process of healing the implant should turn somewhat on its axis, the artificial eye is made to fit the permanent socket and the iris button is placed to correspond with the remaining eye. Neither the wider nor the fine movements of the artificial eye are interfered with in such a case. A conformer is not placed in the conjunctival cul-de-sac postoperatively, since no tension should be placed on the healing edges of the conjunctiva and Tenon's capsule.

Of the considerable number of grooved implants which have been used to date, we have had but one failure, and that was due to the use of a conformer postoperatively. We are convinced that the conformer exerted too much tension on the newly-healed edges of Tenon's capsule and conjunctiva. It is believed that the use of the conformer is extraneous for the reason that there is not sufficient shrinkage of the tissues to warrant its use. The slight decrease in size of the conjunctival cul-de-sac can easily be compensated for after permanent healing has taken place by the simple expedient of enlarging the prosthesis. Artificial eye makers are frequently called upon to do this in cases where the artificial eye has not been worn for a number of months.

The advantages of the grooved implant are many and may be summarized as follows:

1. It involves no change from the usual method of enucleation and the use of a spherical implant. It is technically much simpler to insert than the tunneled implant.

2. Because of the wide surgical exposure and no interference with any part of the implant, suturing of the muscles is simplified.

3. Stay-sutures serve to fix the muscles in their grooves. With the contraction of the orbital tissues, the implant fits snugly in the muscle cone.

4. Complete burial in the implant within the muscle cone and separate closure of Tenon's capsule and conjunctiva assures permanence.

5. The implant is not interposed between Tenon's capsule and the recti muscles as in the case of the tunneled implant, thus permitting more secure healing of the capsule to the recti muscles.

6. Ease of making the implant assures lower cost to the patient.

7. Upon healing, the flattened conjunctiva overlying the anterior surface of the implant exhibits a lively movement. The artificial eye is made with a flat posterior surface and a small lip nasally which fits under the caruncle. The movement of the flat stump is more readily imparted to this type of prosthesis.

8. The cosmetic result is as good as with any buried implant and almost as good as when a semiburied or integrated implant is used, without risk of extrusion which is so very common in the latter.

Summary

A grooved, completely buried hemispherical implant and the technique for placing it in the muscle cone has been described. It has a number of advantages over the usual methods of enucleation. The implant is not interposed between the recti muscles and Tenon's capsule, permitting the capsule to heal more securely to the muscles, thus giving added assurance to the retention of the implant. The cosmetic appearance of the eye postoperatively is very satisfactory, and the motility of the artificial eye is unusually good, both in the wider horizontal and vertical movements, as well as in the short "conversational" movements.

Medical Arts Bldg.,
Minneapolis, Minn.

The implant and the prosthesis are made by the Precision-Cosmet Company, 234 Hennepin Avenue, Minneapolis, Minnesota.

The early or smoldering lesion (of tuberculosis) which is not causing symptoms of illness is a real challenge. The patient, doctor, nurse, laboratory scientist, all trained workers, and the general public need to make a special effort in diagnosis and treatment, with follow-up, patient education and guidance. These silent lesions are not limited to minimal cases, as trained workers all know. We are turning far too many of these patients over into the rocky shoals of the stream of health, lacking in understanding, guided by gossipy opinion, incomplete diagnosis, and insufficient medical guidance after we have found them in our clinics or surveys.—Grover C. Bellinger, M.D., Bull. Nat. Tuberc. A., April, 1951.

THE MANAGEMENT OF INTERMITTENT EXOTROPIA

THEODORE G. MARTENS, M.D.
Rochester, Minnesota

IT SEEMS as if "The Management of Intermittent Exotropia" is a good subject for a round-table discussion. Quite different opinions on this management may be found in the current literature, and some fairly recent innovations seem to make the subject timely.

This group of cases is fairly unique among the disorders of binocular vision. "Exophoria-tropia," "periodic divergent strabismus," "divergence excess type of exotropia" and "daydreaming exotropia" are just a few of the terms that have been applied in the past. A few of the features which make the group unique are the rather late age of onset, the tendency to progression with age, the infreqency of amblyopia, and the relatively good convergence present in most of the cases.

The history frequently is all that is necessary to make the diagnosis. The child is noted to have an eye that "wanders out" at times, especially when he is tired or inattentive. Some children are noted to close one eye when outdoors. When examined, vision usually is normal in each eye, unaided or with corrective lenses. The eyes usually appear straight, both when looking at 20 feet and at 13 inches. The cover test reveals a large exophoria, usually greater at distance than at near, and often there is spontaneous diplopia or failure to regain parallelism after the cover test at 20 feet. Older children and young adults frequently have asthenopic symptoms at near. Prolonged reading is done with effort and often causes bitemporal headache and pain in the eyes which subside rapidly after the close work is discontinued.

The near point of convergence very often is normal, as is the prism convergence, and the prism divergence usually is excessive (more than 8 prism diopters). Ductions and versions are normal. When it is stated that prism convergence is normal, it must be remembered that the starting position is considered as beginning at the exophoric position. Thus, if a person with an exophoria of 15 prism diopters overcomes prism base out equal to 15 prism diopters, he has a prism convergence of 30 prism diopters. It is true that the older the patient, the more likely he is to have some degree of convergence insufficiency, but probably his intermittent exotropia is of longer standing and the usual compensatory mechanism for the establishment of concomitancy has had more effect. The same compensatory mechanism is seen to act throughout the phorias and tropias.

The mention of an excessive prism divergence usually is enough to bring forth the argument as to whether or not there is an active divergence mechanism. This is not the place, nor have we the time, to enter the argument here. If divergence is only a passive relaxation of convergence, then it probably represents the only associated striated muscle function that is without ~~two~~ 2 active antagonists.

Lee and O'Brien have published papers on the treatment of divergent strabismus in which they confine the surgical procedure to one eye and in which they state that one can expect a certain number of degrees of correction for each millimeter of recession, resection or advancement performed. I have not noted these numbers because I think them misleading. A very different view is held by Scobee, who states that a bilateral recession of the lateral recti to the equator will result in parallel eyes no matter how much exotropia or phoria is present (within limitations). Scobee also noted anomalies of the lateral recti in 100 per cent of the cases on which he reported. These anomalies were interpreted to represent obstacles to easy, efficient convergence in these cases and to be the causative factors of the muscular imbalance.

Costenbader, at the Iowa symposium on strabismus, stated that a bilateral recession was the surgical treatment of choice in the cases of divergence excess type of intermittent exotropia. Even more recently, Guibor has stated that bilateral simultaneous muscle operations in divergent strabismus are productive of more good results than are multiple-stage or one-eye muscle operations, although he was discussing a constant type of exotropia.

There appears, however, to be evolving a cer-

From the Section on Ophthalmology, Mayo Clinic, Rochester, Minnesota.

Read at the meeting of the Minnesota State Medical Association, Rochester, Minnesota, May 1, 1951.

tain awareness that surgical treatment in cases of exotropia should be on an all-or-none basis. Partial correction usually leads to gradual lessening of the correction obtained, and further partial correction still fails to achieve parallelism. One seemingly logical explanation is that in these cases fusion usually is present, at least for near objects, suppression is alternating, anomalous localization is fairly infrequent and not deep seated, and progression is the rule with age. If surgical correction falls short of producing parallelism at distance, these above factors are not much altered, while if, postoperatively, the eyes are straight or a bit overcorrected, the alternate suppression is abolished as is usually the anomalous localization. Fusion is stimulated, and when age tends to aggravate the condition these factors are strongly established and prevent the lapse into exotropia.

In esotropia, undercorrection is to be preferred if parallelism is not achieved, and as the patient grows older the residual deviation commonly will lessen. Here time is on the physician's side, while with the exotropia group such is not the case.

There is variance of opinion on the value of nonsurgical treatment of this group also. Scobee dogmatically states that 18 prism diopters is the dividing line, and that exophoria of less than this amount should be treated by orthoptic methods and more than 18 prism diopters of exophoria is indication for surgical treatment. Costenbader is in close agreement here, stating that patients with more than 20 prism diopters of exophoria almost always will need surgical assistance. This author states that preoperative orthoptic training is to be desired in order to break up suppression and create diplopia, while Scobee and Burian say that preoperative orthoptic training is unnecessary.

There is little disagreement that orthoptic training is the treatment of choice for the convergence insufficiency often present in these cases, and probably always present if treatment is sought late. Convergence exercises with base-out prisms, finger-to-nose exercises, and stereoscopic slides, all are beneficial. Prangen has stated that he has seen numbers of patients who have not progressed in the amount of exotropia while they faithfully followed convergence exercise.

I do not wish to be boresome with case reports or tabulations of figures but merely wish to point out that my colleagues and I believe we have obtained better results in the treatment of these patients who have intermittent exotropia of the divergence excess type by simultaneous bilateral surgical procedures directed at the external recti than by former methods which consisted of unilateral recession of the external rectus or recession and resection confined to one eye. In spite of the fact that many of these disturbances are mainly phorias and only occasionally tropias, a little surgical treatment is not enough. Probably more often it would be desirable to add a resection of one internal rectus to the bilateral recession of the external recti.

Scobee states that simple recession of the external recti is not enough. One must divide all the secondary attachments and check ligaments that are found. Few will disagree with this statement. This is sound surgery in approaching all of the extra-ocular muscles. One would not expect much of the recession of an internal rectus if the eye were held in a convergent position by thick check ligaments. The debatable point is the role of these secondary attachments as a causative factor in strabismus. Too few muscles of orthophoric eyes have been dissected in the living individual. It has been our practice to sever all the secondary attachments of the muscles, whether to the globe or to the tissues outside the muscle cone. A generous conjunctival incision is necessary to gain adequate exposure for this purpose. The more one is on the lookout for these anatomic variations, the more one finds them. Scobee makes special emphasis of finding thickening of the intermuscular membrane below the external recti. This is merely Tenon's capsule as it runs from the external to the inferior rectus.

The question often arises as to the best time to treat these patients surgically. It is very well to state that if the exophoria measures more than a certain amount the only treatment is surgical. Often, however, the parents of these children merely want an explanation of why the eye "wanders out" occasionally, and they are unwilling to accept what they consider drastic treatment for such a minor complaint. It seems that, more often than not, this is just the problem to be dealt with. The children can be given convergence exercises to be done at home and can be reexamined periodically. The parents then may notice that with the passage of time the exotropia is becoming noticeable a little more frequently,

(Continued on Page 792)

History of Medicine In Minnesota

MEDICINE AND ITS PRACTITIONERS IN OLMSTED COUNTY PRIOR TO 1900

NORA H. GUTHREY
Rochester, Minnesota

(Continued from the July issue.)

Abraham Franklin Strickler (1873-1927), a graduate of the University of Michigan Medical School in 1898, licensed in Minnesota the same year, came to Olmsted County on May 16, 1899, as the twenty-third appointee, an assistant physician, on the staff of the Rochester State Hospital. He had been transferred from a similar position at the state hospital in St. Peter. On the resignation of Dr. Robert McE. Phelps on June 10, 1899, Dr. Strickler was appointed assistant superintendent to fill the vacancy, it was stated in the local press, but he resigned in the following month to enter private practice. A little later, it appears, he returned to St. Peter in his former capacity but soon resigned to practice medicine in New Ulm with his brother, Dr. Ora G. Strickler, who had been established there since 1885.

In September, 1900, Dr. A. F. Strickler was married to Mary Eliza Ranson, a native of Dodge Center, Minnesota, who from February, 1899, until her marriage was an assistant physician at the state hospital in St. Peter. Dr. Strickler and his wife, after their return from an extended trip abroad in 1900, practiced medicine together in Sleepy Eye, Brown County, Minnesota, until Dr. Strickler's death, at St. Mary's Hospital, Minneapolis, on September 17, 1927.

Robert B. Struthers, of Montreal, Canada, a graduate in 1883 of the medical department of McGill University, came to Rochester, Minnesota, in April, 1884, on a visit to his friend and fellow graduate, Dr. Patrick N. Kelly. Liking the locality, Dr. Struthers stated that he would remain some months, perhaps permanently, and entered partnership with Dr. Kelly. On April 19, 1884, he received license No. 871 (R) from the State Medical Examining Board of Minnesota. Lack of local record indicates that he returned to Montreal within a year.

T. J. Swan, late from four years' service in the Union Army as "regimental, brigade and division surgeon" and his son, **C. J. Swan,** in June, 1865, opened an office for the practice of medicine in Rochester, Minnesota, and community on College Street at the head of Broadway. They announced that they would give especial attention to the diseases of women and children and to diseases or wounds contracted in the army.

Through the columns of the *Rochester Republican* the senior physician offered the following information:

> The doctor comes to our city bearing the highest recommendations as a gentleman and a physician. Several years ago when the doctor, then a resident of Mississippi and a member of the Mississippi Legislature rendered himself obnoxious to the secessionists by his staunch Union sentiments, and consequently found that in order to save his life he must flee north-

> ward, which he did, locating in Kentucky. And when the war finally broke out, he was appointed surgeon for the Federal Army, which position he occupied until a few weeks since, when he with his family came to this city. . . . He is determined to make a good citizen and is fully assured that he will give full satisfaction to all calling on him.

Further information about the Drs. Swan has not been available. Perhaps these men should be classed with the itinerant practitioners who in untold numbers crossed Olmsted County in the sixties and seventies.

Charles E. Teel (1841-1909), a respected pioneer physician and surgeon of Olmsted County, practiced in Eyota from 1865 to 1880, with the exception of a few months in St. Paul in 1872 and 1873.

One of a numerous family, he was born in 1841 in the Province of Quebec, Canada, at the farm home of his parents, who were of Scotch-English-German ancestry. He received his early education in Canada, was married in Vermont at the age of eighteen years to Augusta Paige, and the next year, 1860, went to Montpelier, Vermont. From Montpelier he entered the medical department of the University of Vermont, at Burlington; shortly after his graduation on June 1, 1865, as a doctor of medicine, he came with his wife and children to Eyota, Minnesota.

It is of interest that Mrs. Teel's parents, Mr. and Mrs. Foster Paige, at about the same period came to Minnesota from St. Albans, Vermont, and settled in Oronoco, Olmsted County, and that three of their daughters were married to local pioneer physicians: Augusta, as stated, to Charles E. Teel; Clarissa Alice to Hector Galloway, of Oronoco and Rochester; and Caroline to George B. Ayres, who studied medicine under Dr. Galloway and Dr. F. A. Sanborn in Rochester. As noted earlier, Dr. Ayres on graduation from the University of Michigan, in 1877, practiced medicine in Omaha, Nebraska.

Dr. Teel has been described by venerable citizens of the county as a short, energetic man of genial disposition who easily made friends, and as "a fine man and a good doctor." In the doctor's later years, his grandson, Dr. Charles Teel, of Bellingham, Washington, has said, he wore a full beard and inclined to stoutness. There is still in use (1947) the red brick house, handsome in its day, which Dr. Teel built in Eyota in 1872, the first of its kind in this section. The house was flanked by a substantial barn for the doctor's fine carriage horses, in which he took pride; he used to drive on his rounds over the countryside at a speed that delighted the youngsters along the road.

Dr. Teel's was a widespread practice. Early newspapers commented on his attendance on patients in many parts of the county and of other counties and on his consultations with fellow physicians in neighboring towns; in August, 1871, journalistic description appeared in the *St. Charles Herald* (Winona County) of a necropsy, in a case of hypertrophy of the liver, performed at Dover Center, in which he assisted Dr. H. H. Guthrie and Dr. Jerome B. Tamblin, of St. Charles. For some years in the seventies Dr. Teel was a county physician for Eyota Township and Eyota Village. He was a member of the early Olmsted County Medical Society (founded in 1868), which met in Rochester, and of the Minnesota State Medical Society in 1871-1877.

In the late seventies Dr. Teel became interested in Dakota Territory and in 1880 he removed with his family to Grand Forks. Under the Dakota medical practice act of 1885 he registered in the territory on July 31 of that year. Grassick, in 1926, in his account of medicine in North Dakota, gave interesting information on

Dr. Teel's activities in Grand Forks: For a time Dr. Teel operated a drug store under the firm name of Teel and Morgan. He built a red brick home, which in 1926 was still in use. When the University of North Dakota was founded at Grand Forks, in 1883, Dr. Teel was one of the five regents, of whom three were physicians.

In 1886 or a little later Dr. Teel removed from Dakota to Tacoma, Washington, where he practiced medicine until his retirement, in 1905, to a small farm near Kent, Washington. He died in Kent about 1909.

Dr. and Mrs. Teel had two children, a son, Charles S. Teel, who became a physician, and a daughter, Marie, both of whom were students at Carleton College. Marie Teel was married to Dr. Charles Emery, who practiced at Ballard, a residential suburb of Seattle, Washington. Charles S. Teel (1861-1930) was born in Vermont. After the family settled in Dakota, he taught bookkeeping and business training at the state university for two years, and in Grand Forks was married to Arvilla Webster, a native of southern Minnesota. In 1890, on graduation with the degree of doctor of medicine from the Kentucky School of Medicine, he entered the practice of medicine with his father in Tacoma. In 1892 Dr. Charles S. Teel removed to Bellingham, where he followed his profession for thirty-five years; he was one of the first physicians in Washington to specialize in pediatrics. He was survived by three children, two daughters, and a son, Dr. Charles Edmond Teel (1896-....). In 1946 Dr. Charles E. Teel, namesake of the pioneer physician of Olmsted County and a graduate of Washington University School of Medicine in 1923, had for twenty years been a practicing urologist in Bellingham. The three years immediately after his graduation he spent in internship and residency in eastern hospitals, including the Massachusetts General Hospital and the Peter Bent Brigham Hospital.

.... **Thoen,** late of Christiania (Oslo), Norway, in the autumn of 1879 opened an office in Rochester, Minnesota, for the practice of medicine. Further information about him has not been available.

Wilhelm Thoms has an inconclusive history as a practitioner of medicine in Olmsted County, in 1863, or elsewhere in Minnesota. The Rev. Edward D. Neill, in his *History of the Minnesota Valley* (1882), stated that "Dr. William Thoms" was born in 1827 in the Kingdom of Hanover, where he studied medicine; in 1852 he came to New York, in 1855 to Illinois, and in 1857 to Minnesota. He was married in Scott County, in 1857, to Eliza Stolzer; there were ten children of the marriage.

There is evidence that Wilhelm Thoms on August 25, 1862, was mustered into Company I of the Eighth Regiment Minnesota Volunteer Infantry, and on April 13, 1863, was discharged because of disability; in *Minnesota in the Civil War and Indian Wars* his name appears "Wilhelm Thomas." Neill stated that Thoms was on duty in the medical department at Fort Snelling. After his discharge this man was for a time in Rochester, Olmsted County. He next removed to Mankato, where he ran a barber shop, and thence again to Scott County, where he operated a farm.

Veader Green Treat, a son of Mr. and Mrs. E. F. Treat, of Oronoco, Olmsted County, grew up in Oronoco and received his early education there. After teaching school for a while, he began the study of medicine at the University of Minnesota, in the autumn of 1891. In the next few years there appeared in the

Rochester newspapers occasional items from Oronoco about his resumption, after vacation, of his medical studies at the "Northwestern Medical College" (Northwestern Hospital?) at Minneapolis. On the conclusion of his course "at the state university" in the spring of 1894 he began the practice of medicine at Russell, Lyon County. From 1896 into 1898 he was practicing in Oronoco and in this period (in 1897) he was appointed county physician for that district to finish the unexpired term of Dr. Hector Galloway. Around the turn of the century he was in Titonka, Iowa. Before 1903 he was in Eagle Bend, Todd County, Minnesota, and in 1943, it has been said, he long had been a resident of Long Prairie, Todd County.

Laban Tucker (1810?-1870), a native of Vermont, believed to have been a graduate of the Vermont Medical College (1827-1856) at Woodstock, Vermont, came with his family in 1859 to Rochester, Minnesota, from Port Huron, Michigan. He established his home in a brick cottage in East Rochester formerly occupied by A. Moe, Esq., and his office in the store of D. Le Sueur; later his office was over the pioneer Woodard Drug store and later in the drug store of Anderson and Childs. His first professional card stated that the doctor had had long experience in the profession and that having become thoroughly acquainted with the diseases incident to this climate he was prepared to treat them successfully.

There is record that Dr. Tucker occasionally gave patriotic addresses; that he was secretary and treasurer of the Rochester City Republican Club, treasurer of the Olmsted County Temperance Society, and secretary of the Olmsted County Bible Class. He had been Master of the Masonic Lodge of Port Huron, Michigan, and became member and secretary of Rochester Lodge No. 21 (A. F. and A. M.).

After the death of his wife, Lucy, on October 17, 1863, from typhoid fever, Dr. Tucker sold his house and took up his temporary residence in the home of Mr. Blakely, editor of the *Rochester City Post.* On July 24, 1864, at Hartford, Vermont, he was married to Lydia M. Howe, daughter of Alpheus Howe, Esq., of Hartford, and in March, 1865, he brought his wife to Rochester. For a few more years, perhaps, he practiced medicine here before returning to his native state.

Dr. Tucker died in Hartford on June 10, 1870, from apoplexy, aged "about sixty years." The *Rochester City Post* commented on the character of this respected physician, who was "upright and exemplary in his deportment, affable and courteous in his manners, and always active in his promotion of every public interest and salutary reform."

W. N. Vilas, in Rochester, Minnesota, for about a year in 1880, was, from evidence that falls just short of proof, Walter Nathaniel Vilas (1847-1921?) son of the well-known pioneer physician, Dr. Calvin Dickinson Vilas (1822-1907), of Lake City, Wabasha County, Minnesota. Dr. Calvin D. Vilas, native of Wayne County, New York, settled in Caledonia, Racine County, Wisconsin, in 1856 and practiced medicine there for nine years. In 1865 he came to Lake City and there spent the remainder of his life, a sound and ethical physician and an influential and public-spirited citizen. In 1884, according to a history of Wabasha County published in that year, the three surviving children of the family were: Elbert E., of Clark, Dakota; George W., of St. Paul; and Walter N. Vilas, a physician then practicing in Racine, Wisconsin.

Early in 1880 Dr. W. N. Vilas came to Rochester, having purchased the drug store of Upman and Bayard in partnership with Mr. J. C. Stout, of Lake City.

Dr. Vilas was in charge and his initiatory gesture was the free opening to the public of a soda fountain, The Temple of Flora. There is a note that on June 30, 1880, Dr. Vilas with Dr. W. W. Mayo "opened the chest" of a patient at the Bradley House and "took from his lung a large quantity of matter." In November, 1880, when Dr. Mayo, member of the Board of Health of the City of Rochester, reported through the *Rochester Post* on certain official investigations of adulterated sugars, syrups and candies, he said in part, under the heading "Poisonous Sweetness: Death in the Pot": "Believing such to be the fact, we determined upon a chemical examination of sugars and syrups, obtained from the different grocery stores in the city of Rochester. In this examination we were heartily assisted by Dr. Vilas, who in fact did most of the work on which this article is based."

In December, 1880, Dr. Vilas left Rochester; notice of dissolution of W. N. Vilas & Co. appeared in January with the statement that J. C. Stout of Lake City would settle all the business affairs. On September 22, 1882, the *Record and Union* of Rochester stated, "Dr. Vilas, formerly of this city, has been elected treasurer of El Paso County, New Mexico [*sic*].

The period of practice (1884-. . . .) in Racine, Wisconsin, referred to earlier, perhaps was not long. About a later period various issues of the directory of the American Medical Association give interesting data. In 1906 there were listed Walter N. Vilas, of El Paso, Texas, born in 1847, graduated in 1881 from Rush Medical College, and licensed under the "Years of Practice" law (in two subsequent issues the date of graduation was given as 1879 and 1880), and Walter N. Vilas, Jr., born in 1877, graduated from Rush in 1899, licensed in Texas in 1902. Before 1912 Dr. Vilas, Senior, was in Los Angeles, not in practice; from 1914 through 1921 his name appeared in the general index of the directory, "Address unknown." Walter *Henry* Vilas (born 1877, graduated from Rush in 1899) died at Taft, California; his death was reported to the American Medical Association on March 27, 1912.

William Alonzo Vincent (1846-1943), who read medicine under Dr. E. C. Cross, of Rochester, Olmsted County, in the late seventies, was the first assistant physician to be appointed to the staff of the Second Minnesota Hospital for Insane at Rochester. Dr. J. E. Bowers, the superintendent who opened the hospital on January 1, 1879, less than two years later called the attention of the board of trustees to the need for an assistant physician if the patients were to receive proper care and attention. Dr. Vincent began his work officially in March, 1881, and served until August, 1883. As will be shown, he also practiced medicine privately in the county.

One of a family of seven children, William A. Vincent was born at Kingston, Ulster County, New York, on July 14, 1846, a son of Hiram and Christine Vincent, who were, respectively, of English and of Dutch descent. Five years later the family moved onto a dairy farm near Utica, New York, where the boy grew up. At the age of sixteen years, in July, 1862, he enlisted in Company A, 152nd New York Volunteer Regiment of Infantry, and served with the Army of the Potomac; he was a corporal when he was mustered out on July 15, 1865.

By then intent on the study of medicine, he went to Fairfield Academy, Fairfield, New York, for academic and premedical subjects, and in four years worked his way through; his father opposed his studying medicine and refused to help him. In 1873 William Vincent came west and for two years and a half was a clerk at the Nicollet Hotel in Minneapolis. In 1875 he matriculated at Rush Medical

College. The next six years were filled with the study of medicine, interrupted by periods of farm work and school teaching to bolster a slender exchequer. In that period he first came to Rochester; one of his schools was in Bamber Valley, near the city. During this time he read medicine with Dr. Cross and also, in 1880 or earlier, he found employment at the state hospital.

In the summer of 1880, immediately after the death of Dr. John N. Farrand, of Oronoco, Mr. Vincent, already known locally as Dr. Vincent, hung out his shingle at Oronoco as physician, surgeon and accoucheur, to hold the vacant practice for Edgar A. Holmes, an Eyota boy, who was then finishing his course at the Chicago Medical College. When Dr. Holmes arrived, undergraduate Vincent returned to his work at the state hospital; on his graduation from Rush Medical College early in 1881 he duly became assistant physician to Dr. Bowers.

On leaving Rochester in August, 1883, Dr. Vincent started for Omaha to join his college friend and roommate, Dr. Carl Shepherd, in practice, but stopped to visit at Onslow, Iowa, was drawn into practice the day of his arrival, and remained a year. On May 6, 1884, he was married in Iowa to Elizabeth Paul. Thereafter he practiced medicine four years in Woodbine, Iowa, and then settled in Belle Plaine, that state, where he spent the remainder of his life. Mrs. Vincent died in Belle Plaine on February 4, 1937. Dr. Vincent, on his ninety-fourth birthday, July 14, 1940, paid his last visit to old friends in Oronoco and Rochester, Minnesota. He died on April 20, 1943, survived by a daughter, Vera F. Vincent Bohlman, who since 1932 had managed his home, and her children, Vincent Bohlman and Jeanne Bohlman Mansfield, of Minneapolis; by his son Paul R. Vincent and a granddaughter Willa Vincent, of Kansas City, Missouri; and by his brother, Dr. Harry D. Vincent, retired, of Schenectady, New York.

Dr. W. A. Vincent left a record of a long, useful and honorable life.

J. E. Voak, a homeopathic practitioner, in 1898 said to have been resident in Rochester, in that year was selling "homeopathic family remedies and books" in villages of Olmsted County.

The official register of Minnesota physicians of 1883-1890 includes the name of Dr. J. Emery Voak, of St. Paul, a graduate of the Homeopathic Medical College of Pennsylvania in 1866, licensed in Minnesota on December 28, 1883, holder of certificate No. 491 (H). The name has not been noted in any issue of the directory of the American Medical Association.

Ernest Z. Wanous (1875-1945) was graduated from the University of Minnesota Medical School in June, 1897, and in the same month was licensed to practice in Minnesota. On May 19, 1899, the twenty-fourth appointee to the staff of the Rochester State Hospital, in Olmsted County, Dr. Wanous began his duties as an assistant physician. When a few weeks later Dr. Abraham Franklin Strickler resigned as assistant superintendent of the state hospital, Dr. Wanous was advanced to fill the place. Dr. Wanous resigned on February 1, 1902, to enter private practice in Minneapolis.

Ernest Z. Wanous was born in 1875 in rural McLeod County, Minnesota, near Glencoe, one of the four children of Frank Wanous, who was born on November 12, 1840, and Fannie Chastek Wanous, who was born on November 10, 1849. Both Frank Wanous and Fannie Chastek were natives of Czechoslovakia, who when children immigrated to Wisconsin with their respective parents; a few years later the families came to Minnesota. Mr. and Mrs. Frank Wanous were married on August 6, 1869, and settled on a farm.

Dr. Wanous was married in June, 1907, to Juliabele Hopkins, of Mendon, Michigan. There were no children of the marriage.

An able and ethical physician and surgeon, a respresentative member of medical societies, county, state and national, when Dr. Wanous died in Minneapolis on January 5, 1945, at the age of seventy years, he was in his forty-eighth year of service in the medical profession of Minnesota.

Two German Physicians, self-styled, were in Rochester, Minnesota, at widely separated times.

J. Warninger, "a German doctor of considerable note" came from Aberdeen, South Dakota, in May, 1891, proposing to settle in Rochester. Further information has been lacking.

H. Weber, German Physician or Hygeistic Physician, was in Rochester in the sixties. His signature on an autographed directory of Rochester, in a list of subscribers to Power and Thornton's *Civic and Congressional Township Map of Minnesota,* of 1865, establishes his residence thus early, and newspaper notes indicate that he remained here into 1868. In 1874 an H. R. Weber, native of Germany, then living in Le Roy Township, Mower County, farmer and physician, said to have been in Minnesota since 1866, was a subscriber to Andreas' *Illustrated Historical Atlas of Minnesota,* published in 1874.

Isaac M. Westfall (1819-1888), whose initials have appeared as I. M., J. M., L. M., and P. M., a native of Miami County, Ohio, came to Rochester, Minnesota, in 1860 as a Universalist minister, the first of that faith in the city, and organized a church there of which he was the pastor; in one of his early two day meetings at Morton Hall he was assisted by Dr. F. C. Biggs, of Plainview, Wabasha County. He preached also at Mantorville, Spring Valley and elsewhere in this region. The coming of the Civil War depleted the community and so affected his work of organization that in 1863 Mr. Westfall moved away. In the next two years he acquired instruction in medicine, where, is unknown, and in 1865 he began the practice of homeopathic medicine at Plainview. While the family was in Plainview, a daughter, Alice, was married to Lieutenant William Brown, of Rochester. In the summer of 1866 Dr. Westfall returned to Rochester, this time as a physician, and established his office on Broadway and his home on Prospect Street.

Although Dr. Westfall practiced medicine intermittently in Olmsted County for some fourteen years, his major interests appear to have been in farming and stock raising, preaching and politics, and in the fraternal Independent Order of Odd Fellows, of which he was a prominent member in the state. Leonard (*History of Olmsted County,* 1910) stated that the doctor was a fluent speaker, very social and popular.

In 1868 Dr. Westfall announced that he was retiring as a physician, sold his practice to Dr. Edmund Beckwith, who had just arrived from Cleveland, Ohio, and thereafter for eight years with his son Murray concentrated his energies on other pursuits. His Swiss Farm, two miles south of town, afterward for many years the county farm, was his chief holding and there he had a fine dairy, Devon cattle, Cotswold sheep, White Chester pigs, and poultry, on all of which he won prizes at fairs, county and state. In 1874 the Honorable Ignatius Donnelly, on tour in southern Minnesota, was a guest in the Westfall home and subsequently in his diaries commented favorably on the farm and its products. Dr. Westfall was at one time treasurer of the Olmsted County Horticultural Society, president of the county agricultural society and, in due time, state overseer of the Minnesota Grange.

Politically this practitioner had some little influence. In 1873, a "disaffected Republican," he was elected state senator from the tenth district. In 1873-1874 he was a member of the board of supervisors of his township. In 1875, having returned to the city from the farm, the Honorable I. M. Westfall was "along the west end of the Winona and St. Peter Railroad making political speeches." That autumn he was a candidate, unsuccessfully, on the Anti-Monopoly ticket, for representative. In 1879 he endorsed the Greenback Party and was exhorting thirty local members to run a ticket.

Although nominally retired from medicine, in October, 1871, when the Southern Minnesota Homeopathic Medical Society was organized at Owatonna Dr. Westfall was the first president; he presumably already was a member of the Minnesota State Homeopathic Institute.

Resuming active practice early in 1876, Dr. Westfall opened an office in Eyota and took into partnership Dr. Martin (probably John Lewis Martin, who from 1877 was in Wasioja, Dodge County). Here in 1878 Dr. Westfall was appointed county physician for the townships of Viola, Quincy, Eyota, Dover, Orion and Elmira and the village of Eyota, at $100 a year. In that year he again returned to Rochester, and there practiced medicine until February, 1880, when he sold his considerable real estate holdings and with his wife Amanda and family, including his son Murray and his household, removed to Dakota Territory, to farm near Watertown, to enter politics (candidate in 1880 for representative in the territorial legislature, on the Republican ticket), and to practice medicine. He became a member of the Dakota Homeopathic Medical Association. On July 7, 1887, he was examined at Miller by the Dakota State Board of Medical Examiners, who on July 16, 1887, issued his license.

Amanda Westfall died in Watertown on January 12, 1888, after a long illness. Isaac M. Westfall remarried in November, 1888; he died from cardiac disease on December 29, that year, aged seventy years. Murray Westfall lived until 1917.

Mention has been noted of Dr. Westfall's brother, A. O. Westfall, who in early decades conducted a private school in Rochester; he died in Carthage, Missouri, in 1874. A niece, Allie Westfall, studied medicine with her uncle in Rochester before going to the Hahnemann Medical College and Hospital in Chicago; she died in Chicago on May 6, 1888. At the time of her death, it has been said, she was an assistant physician on the staff of the college.

John N. Wheat (1818-1903), with the exception of one year in Rochester, Olmsted County, was from 1856 until his death a prominent citizen and a respected homeopathic physician of Austin, Mower County, Minnesota. A native of "Old" Hadley, Massachusetts, he was educated in the public schools of Cleveland, Ohio, and at the Homeopathic Medical College of Cleveland, from which he was graduated in 1852. After an initial practice of medicine in Oberlin, Ohio, he came to Minnesota. Official histories of Mower County, of 1884 and 1911, contain excellent detailed biographical sketches of Dr. Wheat.

In April, 1882, Dr. and Mrs. Wheat came from Austin to Rochester, which was the home of their only surviving child, Carrie (Mrs. E. G.) Bascomb. (E. G. Bascomb, member of a pioneer family of Oronoco, was a brother of Dr. Marshall T. Bascomb, whose sketch appears in the present series.) Dr. Wheat practiced medicine in Rochester until March, 1883, when he and Mrs. Wheat returned to their familiar associations in Austin.

The writer has noted an erroneous statement that Dr. J. N. Wheat "during the eighties spent a few years in Fillmore County, where he was elected state senator." In correction: Dr. James Madison Wheat (1825-1910), a distinguished pioneer physician of Fillmore County, lived in the village of Lenora from 1856 into 1887, when he removed to Redlands, California. Dr. James M. Wheat in 1875-1877 was state representative and in 1878-1879 and in 1881-1886 was state senator from his district.

Mrs. Mary (Jackson) Whitney, "M. D.," came from Lake City, Wabasha County, to Rochester, Olmsted County, in late 1879 or early 1880, and during her two years in Rochester had her office in different locations on Broadway. In June, 1881, her brother, the Hon. John S. Jackson, of Redwood County, visited her; Mr. Jackson had been attending the grand lodge of the Independent Order of Odd Fellows and had been elected grand master.

One of Dr. Whitney's first notices to the public in Rochester was as follows:

> LADIES, if you intend to secure the services of Dr. Whitney during your confinement, engage her at your earliest convenience. Twenty years experience as midwife causes her to prefer visiting her patients before the event as well as after, in order to render the occasion comfortable and safe. Her subsequent visits are to insure as far as possible perfect health combined with an elegant figure. No extra charge for advice. Office and residence, Broadway, 3 doors south of Nelson's Mammoth Dry Goods Store, Rochester, Minnesota. (*Rochester Post,* March 19, 1880)

Subsequently there were few issues of the local newspapers that did not contain some reminder of her: "Dr. Mary Whitney's compliments to the Board of Health of this city and would call their attention to the condition of the alley in the rear of College and Third." "Dr. Mary Whitney prefers not to do office work on Sunday." Although her announced specialty was obstetrics and the diseases of women and children, she cured catarrh (she stated) and treated for rheumatism and neuralgia with electricity and was agent for Harts' Magnetozone, the Marvelous Comb: "Every tooth a perfect magnet, will last a lifetime. Prevents hair falling off and turning gray; cures headache. Removes dandruff and never breaks the hair."

In September, 1881, Dr. Ida Clarke (1853-1921?), from New Lisbon, Ohio, graduate of the Woman's Medical College of Pennsylvania, joined Dr. Whitney in partnership. Dr. Whitney removed to Minneapolis, it is believed, early in 1882; her name has not been noted in any issue of the official register of physicians in Minnesota.

(To be concluded in the September issue)

President's Letter

PUBLIC RELATIONS

DURING the years 1949-50, the medical profession embarked on a new adventure: taking its case to the people through the medium of newspapers and radio. These newspapers gave very complete coverage to this campaign of education. The non-metropolitan papers that reach more than fifty per cent of the nation's readers were especially co-operative. The purpose of this campaign was to more fully inform the people of the aims and ideals of the profession and to acquaint our citizens of its wish to advance the efficiency of medical care. The result of this educational campaign was very gratifying.

A very good public relations meeting was that of the Minnesota State Medical Association held early in March this year, when it held it first rural health dinner as part of the annual County Officers Meeting. The question of need for more rural physicians was discussed as were plans for getting young doctors out into the country where the need is really evident. Several members of the state Legislature and their wives were present. This dinner was the forerunner of an annual state-wide rural health conference. The social-economic phases of medicine were stressed, and various plans on improvement were discussed.

With the new attitude of the profession in regard to press-radio relations, a code should be drafted defining the responsibilities of the press and radio, the medical society, and the hospitals in transmitting and publishing news. This should include plans for medical-press contacts, and also detailed procedure for reporting emergency cases.

Minnesota Medicine has encouraged press-radio-medical conferences. These have been held at the state level and by many constituent county societies. A recent dinner meeting held by the Red River Valley Medical Society at Thief River Falls was well attended by representatives of the press throughout this district and by local physicians. Discussion included the reasons and objectives of the meeting, need of educating the public in the problems of the profession and of its effort to give more and better care to the people, after which excellent talks were given by members of the press, and very apt questions were brought up by them. Several of these editors and other press representatives expressed the opinion that the meeting was a very good one and many of them suggested similar meetings in the future.

Let physicians remember that their public relations start at the registration desk the first time the patient enters the doctor's office. If patients are met with indifference by the receptionist they are not too happy in this first contact with the doctor. If their physician is indifferent, unsympathetic or aloof, further harm is done. If they receive scant attention, they will leave the office in a state of mind antagonistic to this doctor or to all doctors. Thus bad relations between doctor and patient may be added to, which may become a factor in bad public relations between the profession and the people.

More thought should be given to continuing the improved public relations enjoyed by the profession now, which is the fruit of the great educational campaign of last year. Let us continue this effort now and not suffer a letdown. This year is the accepted time; let us not wait a year.

J. F. Norman

President, Minnesota State Medical Association

◆ Editorial ◆

Carl B. Drake, M.D., *Editor;* George Earl, M.D., Henry L. Ulrich, M.D., *Associate Editors*

PREMEDICAL EDUCATION

THE CARLETON COLLEGE Alumni Conference on Medicine, held at Northfield, Minnesota, on June 10, served to crystallize the present-day thinking on the subject of premedical education.

The recognition of a physician's need for more than a strictly scientific education has been evinced in recent years by the requirement of two to four years of college education before the assumption of a medical course. We are of the opinion that the majority of medical students today have had four years rather than less of college before matriculation in medical school. Other factors being equal, a young man with several years of undergraduate college work has a much more mature outlook on life than the high school graduate.

How much of the premedical student's time should be devoted to strictly scientific studies as contrasted with those of a more academic or cultural nature is perhaps subject to a difference of opinion. As brought out at the recent conference at Carleton College by Professor Thurlo B. Thomas, Chairman of the Department of Zoology at the college, premedical students are advised to take the chemistry-zoology major which has been provided the past four years and which supplies sufficient basic sciences for the requirements of a medical school but not as much as would be needed for a chemistry or zoology major. An entering premedical student, too, who can pass certain examinations in English, a foreign language or one of the natural sciences is exempted from what would constitute a needless repetition of these studies and is encouraged to spend his time in the development of his special interests and the mastery of at least one major field. It is also believed at Carleton that the recent institution of the comprehensive examination towards the end of the senior year in the major subject has served as a real stimulus for acquiring a fund of knowledge of a subject in contrast to simply an accumulation of credits for courses passed.

Carleton alumni present at the conference included medical administrators, surgeons, those interested in research, general practitioners, specialists, medical students and prospective medical students. Discussions showed that members of the medical profession, as a rule, have a wider interest than their own special fields.

The importance of early and wise counselling of premedical students by trained advisors was emphasized. A student's qualifications and motives should be frankly appraised. A parental wish, an ill-founded romantic notion or a desire to acquire wealth or an easy living is too often the prompting motive for choosing medicine as a career. It must be admitted, however, that even for the experienced it is difficult to select those who are specially fitted to become physicians, just as it is quite impossible to predict who will make a success of practice. Incidentally, if state medicine should ever come, the prospect of a soft job and an easy living is only too likely to become the common incentive to the selection of medicine as a career.

The physician has always had the need for a broad outlook on life which comes from education and experience. In the more complex present-day living, his need is even greater—not only for the counselling of patients but in the many fields in which he is called upon to take a part.

We once knew a rather well-known violinist whose face was a blank at the mention of George Washington. He was an immigrant, 'tis true. But this might serve as an example of over-specialization. It is not too much to say that the physician today who knows medicine alone can be accused of over-specialization.

OLEOMARGARINE DISCRIMINATED AGAINST

OLEOMARGARINE has been widely used for the past seventy-five years. Refinements in its manufacture which include the addition of Vitamin A (15,000 U.S.P. units per pound) to 99 per cent of the sold product, have made it more and more popular as a fat-containing food. Most of it is made of vegetable fats derived from soy beans, cotton seed, peanuts and corn, while some contains oil from refined meat fats. Its composition of 80 per cent fat, 3 per cent salt and 15.5 per cent moisture, is the same as butter.

The Council on Foods and Nutrition of the AMA says that when oleomargarine is fortified with Vitamin A it can be substituted for butter as a food. The National Research Council's Committee on Foods and Nutrition states there is no nutritional difference between oleomargarine and butter. The palatability of present-day oleomargarine and the recognition of its value as a food has led to its increased consumption. More than half of the homes in the country use oleomargarine, and sales mounted from 368,000,000 pounds in 1941 to 860,000,000 pounds in 1949. As a result, the manufacture of oleomargarine provides the largest customer for cottonseed oil and second largest for soybean oil.

Oleomargarine being so similar to butter in flavor and appearance when it too is colored, substitution is possible, and for this reason certain laws and regulations have been passed. In some states, Minnesota and Wisconsin included, yellow oleomargarine cannot be manufactured or sold. In California and Nebraska, it cannot be served in public eating places. While oleomargarine can be produced and sold at a considerably lower price than butter, license fees for manufacturers as high as $100 in California and Nebraska and $1,000 in Wisconsin, and for wholesalers as high as $50 in California and $500 in Wisconsin, raise the cost of oleomargarine. One of the most absurd laws passed by Minnesota, Wisconsin, and a half dozen other states is one prohibiting the use of oleomargarine in state-supported institutions. In some states there is an excise tax amounting to from 5 to 20 cents a pound on oleomargarine which the citizen interested in economizing pays the state when he buys oleomargarine instead of butter.

Because it would be so easy to deceive a customer, certain Federal requirements for eating places serving oleomargarine have been adopted. A sign "Oleomargarine Served Here" or information on the menu to that effect is required and the oleomargarine must be cut in triangular shape or served on a dish or paper with "oleomargarine" stated thereon. If these regulations are honestly observed, no one is going to be fed oleomargarine unknowingly, and such regulations are probably reasonable enough.

When, however, certain groups of a state's citizenry like the dairy interests can cause special state taxes to be placed on a commodity which competes with their product, the procedure cannot be too heartily condemned. Such a procedure is an example of a minority influencing legislation to discriminate against the farmers who raise the crops used for the manufacture of oleomargarine and in favor of the dairy farmer. We have too much of this use of government for special interests. Public opinion sufficiently aroused will correct this interference with free competition in a supposedly free country.

VETERANS HOSPITALS AGAIN

IT IS STRANGE that, with every citizen of the country conscious of the vital necessity for governmental economy if we are to have sufficient funds available for national defense and not go through national bankruptcy, there is so little evidence of any serious effort on the part of Congress to economize in non-defense activities.

The approval of the House of H.R. 313, a bill providing for the construction of twenty-four new Veterans Administration hospitals with a bed capacity of 16,000 at a cost of $335,000,000 is the occasion for again commenting on the subject.

The subject of the need for hospital beds for veterans has been given thorough study in the past few years by: (1) the Hoover Commission; (2) the Committee on Public Health Relations of the New York Acadamy of Medicine, and more recently, by (3) the National Doctors Committee for Improved Federal Medical Service† which is an affiliate of the Citizens Committee for the Hoover Report. All three reports agree that there is no need for any such expansion of Veterans facilities.

It is true that the first two reports mentioned were pre-Korea. The last-mentioned committee, the National Doctors Committee for Improved Federal Medical Service, however, has just voiced its opposition to H.R. 313, which has been approved by the House and is now in Senate committee, in letters to Vice President Barkley and Speaker-of-the-House Rayburn. This committee, of which Dr. Robert Collier Page is chairman and which has an advisory committee of medical experts, should know whereof it speaks. When Dr. Page states that the plan under which the twenty-four new hospitals would be built is out of date, that the Veterans Administration has objected to the program, that an indefinite number of unused government beds are available today and that the proposed appropriation of $335,000,000 is "unwarranted and wasteful" and the action is being taken "without facts and a clear plan based on those facts," the Senate should listen.

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† Minnesota Med., 34:5-74 (June) 1951.

In an editorial entitled "Hospital Care of Veterans,"* mention was made that it was to President Truman's credit that he had cancelled the construction of twenty-four new Veterans' hospitals with a bed capacity of 16,000 which had been approved by Congress in 1949. It is to be hoped that the President will again exert his prerogative, if the Senate fails to see the light.

STATEMENT FROM THE NATIONAL DOCTORS COMMITTEE FOR IMPROVED FEDERAL MEDICAL SERVICES

By Robert Collier Page, M.D., *Chairman*

The doctors of this country are faced with a responsibility to make their voices heard in the forthcoming discussion that will result from Congressional consideration of the bills affecting Federal medical services.

These bills (S. 1140 and H.R. 3305 and 3688), if enacted, would create a new Department of Health, with Cabinet status which would unify and bring under one central control the thirty-odd medical systems of the Government.

There is no doubt that this unification is needed or that some plan will probably be adopted to correct the situation; perhaps that legislation, which follows recommendations of the bipartisan Hoover Commission, or some other method yet to be advanced.

The point is that this question of national importance should be of greater interest and concern to the doctors than to any other group. It is therefore desirable, in fact essential, that the thinking of the medical profession be explored and the opinions of its members be brought to the attention of Congress before that body acts upon any legislation.

One thing is sure. Unless the doctors make their position clear, some legislation might be engineered by lay groups, which, not having the doctors' point of view, might do them a disservice.

For these reasons the National Doctors Committee for Improved Federal Medical Services has been created. It is a fast-growing, nation-wide politically nonpartisan body of medical men with the welfare of their country and their profession at heart. It is not a pressure group and not a lobby.

The policies of this committee are being formulated by an advisory committee of doctors representing all branches of medicine and many parts of the country. The committee includes: Charles Fletcher McCuskey, M.D., Los Angeles, California; Donald M. Pillsbury, M.D., Philadelphia, Pennsylvania; Samuel Arthur Garlan, M.D., New York, New York; Rufus B. Robins, M.D., Camden, Arkansas; Maxwell Myer Wintrobe, M.D., Salt Lake City, Utah; George Edward Burch, M.D., New Orleans, Louisiana; Richard Hale Young, M.D., Chicago, Illinois; Howard Clifton Naffziger, M.D., San Francisco, California; Charles Denton Kerr, M.D., Houston, Texas; Donald Marshall, M.D., Kalamazoo, Michigan; Lewis M. Overton, M.D., Albuquerque, New Mexico; Clair Michael Kos, M.D., Iowa City, Iowa; Thomas Byrd Magath, M.D., Rochester, Minnesota; Lee Palmer, M.D., Louisville, Kentucky; George D. Wilson, M.D., Asheville, North Carolina; James Barrett Brown, M.D., St. Louis, Missouri; Brig. Gen. James Stevens Simmons, M.C., Boston, Massachusetts; Herbert Spencer Ripley, M.D., Seattle, Washington; Arthur Bradley Soule, Jr., M.D., Burlington, Vermont; Richard Kennedy Gilchrist, M.D., Chicago, Illinois; Henry Swan, M.D., Denver, Colorado; Charles Riesor, M.D., Atlanta, Georgia.

It may be that doctors generally are not aware of the situation that exists in the vast conglomeration of the Federal Medical Services. They may not realize the unnecessary waste of scarce medical manpower that results from the duplication of skills by five major and 30 smaller medical systems controlled by the Government.

The Army, Navy, Air Corps, Veterans Administration and the Public Health Service are conducting independent and competing hospital systems which are not co-ordinated. They compete for appropriations from Congress, for medical specialists, for nurses and for supplies. This results in vast waste of men and material and the system is costing the taxpayers $2 billions a year.

There is no central authority or supervision over these separate systems and there is no plan for the transport of medical personnel or equipment in the event of a great emergency such as an air attack. There is no law making such co-ordination possible.

Some of these units, notably the Veterans Administration, build hospitals in areas where it is impossible to staff them and sometimes spot a new hospital in an area where an institution of one of the other units is being shut down.

The whole country has been made conscious of the danger of possible atomic attack. We have organized defense systems, established air raid warning signals and bomb shelters. But what is going to happen to the populations of bombed areas? An air attack would probably destroy the local hospitals and, if they were spared, would conceivably result in casualties far outnumbering the available beds and overwhelming the local physicians.

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* Minnesota Med., 32:1126 (Nov.) 1949.

Medical Economics

Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association
George Earl, M.D., Chairman

MEDICAL-PRESS MEETINGS ENJOY CONTINUED SUCCESS

Taking the cue from the 1949 state-wide medical-press conference, first of its kind in the nation, local medical societies have been hosts to editors and legislators in meetings which have proved that medicine and the press have much to discuss on a common ground. Continuation and expansion of this progress is seen in many newly scheduled meetings.

These meetings, taking place in widely scattered areas of the state, have been an excellent experiment in good public relations, and have shown that, generally speaking, aims and ideas of the two professions are basically similar.

Most meetings have been conducted on the discussion and question-and-answer basis, with fundamental problems outlined by leaders in both medical and newspaper fields. Of prime concern at many of the conferences has been compulsory health insurance, the problems involved in medical news coverage and pertinent medical-economic matters.

Comments have been genuinely favorable, and a general feeling has grown that meetings of this type are of extreme value in creating a much closer working relationship between the press and the medical profession on a local level—that level on which, after all, the most effective and real relationship can exist.

PRESIDENT REVIVES HEALTH INSURANCE ISSUE

As if President Truman didn't have enough controversial matters to plague him, he has revived the national compulsory health insurance issue again. However, it is interesting to note that he has taken such a lukewarm attitude toward his favorite legislative child—it is the equivalent of admitting defeat and asking for clemency at the same time. It seems strange that such people as Truman and Federal Security Administrator Oscar Ewing, being in such "high" places and supposedly in a position to receive all kinds of valuable information, have not yet been instructed that the American people obviously will not be compelled to buy health insurance which is controlled by a government bureau.

Paper Condemns Negative Stand

Expressing the view that Truman is feeling the need for compromise in his invitation to critics to come up "with a better proposal—or even one that is almost as good," the *Washington Post,* in a recent editorial, states it this way:

> "In our view, the President minimized the gains that have been made on a voluntary basis. When the first compulsory health insurance bill was introduced in Congress in 1939, fewer than 3 million persons were enrolled in the Blue Cross hospital service plan. Today that enrollment is in excess of 40 million . . . it is now supplemented by the Blue Shield plan, sponsored by the medical profession for the prepayment of medical and surgical care, which is also growing rapidly. . . .
>
> "The President says that 75 million Americans have no health insurance at all. Why the negative approach? If this means that the other 75 million do have some protection against the mounting costs of illness, the gain is enormous . . . we suspect that any compromise likely to be considered will have to be built on the foundations already laid."

AMA EDUCATION CAMPAIGN TERMED HUGE SUCCESS

Stepping back to admire their work—and justifiably so—the American Medical Association's National Education Campaign directors, Whitaker and Baxter, presented a case history of that campaign. The keynote was struck by Miss Baxter, reporting recently at the Second Annual Southern Public Relations Conference in New Orleans. She said, "Since we have been asked to outline the case history of American medicine's fight for survival as a profession, we shall begin with the patient's first disturbing symptoms and discuss the diagnosis, the therapy, the rather dramatic complications, and end with a prognosis. There is one interesting circumstance which makes the doctor's case unique, perhaps, and of more than casual interest to public relations people. In the dual capacity of both patient and physician, the doctors diagnosed their own illness as one which would respond to appropriate public relations treatment. And under that therapy, self-administered, they are today long past the crisis and well on the road to recovery from the Socialization malady."

Miss Baxter then outlined the familiar story of how compulsory health insurance was first introduced and how American medicine rose to the occasion by first stopping the immediate legislation and then beginning the long-range and constructive job of establishing firm proof with the majority of the people that the American medical system not only is the finest in the world's history, but that it can meet the medical needs of the people by voluntary means and without Government control. By giving the people "facts versus hokum" and using the grass roots method, the campaign became a definite success, she emphasized.

Medicine Knows Its Goal

Proving that sincere words are potent tools and that their proper use is highly effective, the conclusion was:

> "We have seen many evidences in this broad national campaign that our profession knows where it is going, and that in the journey it will make a solid contribution to our country's welfare.
>
> "Most of our clan, . . . are not by any means following . . . the Scot who annoyed his seat companion by jumping off every time the train halted . . . the second man asked, 'Why do you keep getting off? Why don't you stay aboard until you get where you're going?'
>
> "'Well,' the Scot said, 'I don't know exactly where I'm going. My doctor told me this morning that I have a bad heart, so I'm just buying my ticket from station to station.'
>
> "The thoughtful people in our profession aren't buying their ticket from station to station. They have a clear perception of their objectives. They know that the welfare of responsible business and the welfare of this country are inseparable. And as public opinion catalysts they are determined to measure up to their huge obligation to both.
>
> "We believe the doctors of the nation have contributed immeasurably to that same philosophy of individual responsibility for the future of the system we all call 'American.'"

LABOR LEADER HITS GOVERNMENT MEDICINE

Another voice was added recently to the growing millions who are speaking out against medical care for all on a government-controlled basis. It was the voice of Dave Beck, executive vice-president of the International Brotherhood of Teamsters, American Federation of Labor. Mr. Beck spoke during the American Medical Association annual meeting in Atlantic City, June 11-15, making it clear that the real crux of the health problem today is "how can we bring adequate medical care within the economic grasp of our citizens?", but that "the road to final solution is not through socializing the medical profession."

Principles Not Irreconcilable

Mr. Beck told doctors that he believed the reason that the problem of bringing medical care to all citizens is so pressing is—it involves two principles which some people think are not reconcilable:

> ". . . first, free enterprise, the right of the doctor to practice his profession as a free man in a free society, and—second, the right of the people of the Nation to have available to them and within their economic reach, all of the medical care and attention which are necessary to keep them in the highest state of health known to medical science."

Denying that this conflict is insoluble, Mr. Beck concluded, "I believe in the maximum of liberty for all Americans, and in their right to rise to high levels of accomplishment, through their own skill, initiative and intelligence . . . let us never make the mistake of socializing the medical profession. We have been born as a great people and we will continue to thrive as a great people only under a system of free enterprise—free for the businessman, free for labor, free for the doctors and free for all of our people."

EDITOR APPLAUDS MEDICINE'S STAND

Taking the view that the National Education Campaign of the American doctors is an excellent beginning, and that others should take up the crusade and join medicine in continued vigilance, Edwin P. Abels, publisher of the *Lawrence* (Kansas) *Outlook* and past president of the National Editorial Association, used glowing words of praise in describing that campaign.

Stating that the freedom of this nation is being poisoned, Mr. Abel said, "What a thrill it was when you men walked in, unannounced, and told the world to count you on the side of freedom, liberty, private initiative and all of the privileges and opportunities that have contributed to the greatness of this nation. Yet it was the natural thing for you to do. History tells us that yours is a profession built by men of courage, vision and great intellect.

Mr. Abel spoke before the Conference of Presidents and other Officers of the state medical associations in Atlantic City during the American Medical Association annual meeting. He pledged aid from American newspapers:

> "Gentlemen, we recognize in you the courage that is necessary to assist in regaining and preserving our freedoms. You have made a start. Let's not just sit there. . . . You are teamed with the power of the published word and paired with men who are alert to the growing threat. . . . Each of us has been busy learning our business, and life is so short, that we must act now if we are to be effective.
>
> "What America needs today, what your profession and my business need, more than any other one thing that I can call to mind, is men of courage to speak out fearlessly and courageously for what they know to be right. You did it in your advertising campaign and you inspired thousands of others to follow your example. By that campaign you won new prestige. Brave men must hold high the torch of liberty."

It is fortunate for American medicine to have such alert allies as the hometown newspapers of the nation, reaching, as they do, more than 52 per cent of the people. Only such combined efforts can effectively battle the broader aspects of the socialization forces. Each facet of the nation can muster strength to combat threats to its own, but each must be partially dependent on the other for protection and final defeat of these common unrelenting foes.

The decline in the tuberculosis mortality rate is indeed encouraging, but through the extension and improvement of our case-finding procedures, we actually know of more cases today than in the past. Furthermore, there is good reason to believe that the morbidity rate for tuberculosis (that is, the number of cases of tuberculosis developing each year per one hundred thousand population) is not declining at the same rate the mortality rate has declined. Those who are living and ill with tuberculosis form the public health problem; not those who are gone and beyond our help.—JAMES E. PERKINS, M.D., *Journal Lancet,* April, 1951.

MANAGEMENT OF INTERMITTENT EXOTROPIA

(Continued from Page 776)

and if such is the case the physician may be able to show them figures to prove that the measurable exophoria is getting greater. In the past, many of these patients went untreated until they reached their teens, when the cosmetic deformity became apparent to them. By then the alternate suppression was much more deep seated. The deviation was greater and the condition was definitely less easily corrected. Certainly, an effort should be made to treat these patients earlier by proper surgical means. The desire to get the binocular mechanism in proper adjustment in these cases is just as important as in the cross-eyed child.

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IMPROVED FEDERAL MEDICAL SERVICE

(Continued from Page 789)

There is the Red Cross, but as a voluntary organization it might lack the authority needed in such an emergency. Fine as it is, it might not, alone, be able to cope quickly with a catastrophe of the magnitude, from experiences in Japan, such a bombing would assume. It might require the full weight and authority of Government hospital services.

While there are various opinions about whether or not we have an actual shortage of doctors, there is no doubt that their distribution, especially into the armed services, is having an effect in many sections.

These are matters which the committee believes doctors should take to heart, to ponder and to be able to voice their opinions when they come before the Congress for solution.

Minneapolis Surgical Society

Meeting of January 4, 1951

The President, Harvey Nelson, M.D., in the Chair

Symposium

End Results and Complications in the Surgical Treatment of Peptic Ulcer

INTRODUCTION

HARVEY NELSON, M.D.
Minneapolis, Minnesota

Seventy years ago Billroth reported the first partial gastrectomy in Vienna—anastomosis between the resected stomach and the duodenum, and this, so to speak, was the first Billroth I operation. In that same year the first gastroenterostomy was done by Wölfler, one of Billroth's assistants. Sixty-five years ago Billroth did the first anastomosis between the resected stomach and the jejenum, closing the duodenum, and this was the antecedent of the so-called Billroth II operation. Since that time many modifications of these operations have been described, and the pendulum has swung this way and that. Not long ago Dragsted developed the technique of a transthoracic vagotomy, and numerous articles describing this and intra-abdominal vagotomies were received with varying degrees of enthusiasm. And so even now the controversy continues as to what is the best surgical procedure and what are the indications for any one type of procedure. We have all had our happy and our discouraging results.

The presentation of this discussion is not with the idea of reviewing or describing the various surgical procedures as such but rather with the thought of crystalizing our present impressions as to what are the modern trends in surgical management and what prognoses we can anticipate. To my knowledge "End Results and Complications from Surgical Treatment of Peptic Ulcer" has not been considered as a subject heretofore by this society. It is hoped that such an evaluation will help us in our constructive criticism of future treatment of ulcer patients. Until medical management can develop a prophylaxis or cure-all for peptic ulcer, surgical treatment of some cases is going to be necessary.

We are going to try a little different method of handling this subject than has been our usual custom in presenting our program. Essentially this entire evening is to be a round-table type of program with Dr. Maxeiner and Dr. Nordland as our surgical discussants and Dr. John Boehrer as our medical corroborator. Each of these men will present his part of the program in a fifteen-minute discussion, and then this will be followed, I hope, by a considerable question-and-discussion period that all of you will freely take part in. I wish to take this opportunity of thanking Dr. John Boehrer, our guest, to whom questions as to medical treatment will be directed in the general discussion period.

END RESULTS AND COMPLICATIONS OF THE SURGICAL MANAGEMENT OF PEPTIC ULCER

STANLEY R. MAXEINER, M.D., F.A.C.S.
Minneapolis, Minnesota

To evaluate the relative merits of any therapy it must be used many times and its immediate and late results determined. We, as a profession, frequently proclaim the merits of some drug or surgical procedure, only to discard it at a later date.

At present, research has taught us that the predominant cause of peptic ulcer is hydrochloric acid. As a result, therapy is directed primarily at its control or elimination. The writer can well recall the popularity of pyloroplasty, gastroenterostomy and minimal sleeve resections which so frequently produced outstanding temporary improvement but changed the physiology only slightly and did not eliminate the cause of the original ulcer. He can recall the early claims of Berg and Strauss that gastroenterostomy for duodenal ulcer was followed by marginal or jejunal ulcer in 20 to 30 per cent of cases, and they advocated the more radical gastric resection. At approximately the same time Balfour reported the occurrence of marginal ulcer in only 2 per cent of their

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From Department of Surgery, University of Minnesota.

cases. Gastroenterostomy failed either because it did not cure the original duodenal ulcer or was followed by too many marginal ulcers. The worst complication, gastrojejuno-colic fistula, is reported to occur in 11 to 17 per cent of anastomotic ulcers. Certainly, there is still a difference of opinion, and undoubtedly any surgeon is governed in his choice of procedure by his personal success and end results. In 1940 Walters reported that their treatment for duodenal ulcer consisted of gastroenterostomy in 55 per cent and gastrectomy in but 40 per cent of operated cases. However, in 1942, these figures were virtually reversed, at which time they performed gastroenterostomy in only 41 per cent and gastrectomy in 57 per cent of their operations for duodenal ulcer. Gray recently stated that in the last several years the ratio was approximately three to one. Pyloroplasty, he states, is reserved for the very young patients with minimal lesions, resection for patients in the late thirties and under fifty-five with high hydrochloric acid, and gastroenterostomy for those over fifty-five who have a long-standing ulcer with relatively low hydrochloric acid and with symptoms due primarily to cicatricial pyloric obstruction.

The choice of surgical treatment in this locality is greatly influenced by the teaching of Wangensteen, substantiated by extensive research and experience and long-time follow-up end results at the University of Minnesota. Wangensteen postulates: (1) an adequate gastric resection, that is, removal of at least 75 per cent of the stomach, which includes nearly all of the lesser curvature; and (2) an anastomosis to the jejunum with no loop or a very short loop which implies a retrocolic placement. Experiments have shown that the jejunum is less tolerant to the contact of gastric content the greater the distance along its course. Therefore, the shorter the loop, the less likely is jejunal ulcer to follow. Contrary to the conservative type of surgery, radical resection of the acid-secreting portion of the stomach removes entirely or reduces the quantity of hydrochloric acid, the prime factor in ulcer prevention.

From an article entitled "Physiologic Rationale for the Surgical Treatment of Peptic Ulcer," by Stein, Grossman, Meyer and Ivy[6] in *Surgery Gynecology and Obstetrics* for January, 1951, I wish to quote:

"The performance of an adequate gastric resection entails the removal of the majority of the fundus and the entire antrum of the stomach. The secretory capacity of the stomach is reduced not only by the removal of acid secreting fundic cells, but in addition, antral removal decreases the stimulation of the parietal cells in the remaining gastric pouch. By these two mechanisms the secretory activity of the stomach is markedly reduced. Following gastric resection therefore, the secretion that takes place is relatively small, whether during the interdigestive period, or during any of the phases of the digestive period. Work in this field has recently been summarized by Ivy, Grossman, and Bachrach, who point out that, following subtotal gastrectomy for duodenal ulcer, approximately 75 per cent of cases (683 out of 904) had an anacidity to a test meal of histamine. For the same reason, the response to emotogenic factors, following gastric resection, will also be slight. It is thus insufficient to consider that gastric resection affects only the gastric phase of secretion. In view of the decreased secretory capacity of the stomach, there is a lessened response to all types of stimuli."

By such radical procedures it at once becomes a question of immediate mortality and complications, and the late end results and the effect upon the general health of the patient.

Recent reports by Trimble and Lynn[7] of Johns Hopkins University, David Gaviser[2] of the University of Minnesota, and J. K. Helferty[3] of the United States Veterans Facility at Minneapolis, are extremely complete reviews of the literature and summary of long-time follow-up results on patients operated upon in their institutions. Much of the material I have used is obtained from these sources.

The immediate mortality rate for gastric resection varies from 1 to 20 per cent in different reported series. Walters et al reported a mortality rate of .9 per cent in 317 cases of duodenal ulcer treated by partial gastrectomy. Gaviser states that their mortality rate was 4.5 per cent in unselected cases but was only 3 per cent when emergency cases were not included. Helferty reviews many series of partial gastrectomy for peptic ulcer in which the mortality ranged from 1.3 per cent by Culligan to 11.5 per cent by Douglas in 40 cases. Ivy concluded that in the hands of a well-trained surgeon, a mortality of 4 per cent could be expected. Garlock reported in 1949 their last 116 cases to have been done without mortality. Miller[4] states that he performed 100 subtotal gastrectomies in 1947 with no deaths and seventy in 1948 with only one death. He also adds that he has had recurrent ulcer in only 1 per cent of subtotal gastric resections.

The immediate complications of partial gastrectomy vary little from those of other major surgery within the abdomen, especially when any resection is performed. The subject of peritonitis from soiling revives the discussion for and against the closed aseptic technique. Peritonitis may be the result of a leak of the closed duodenal stump or a leak at the site of the anastomosis. Immediate chemical reaction occurs, followed by bacterial invasion which may be fatal, or the infection may become sealed off as a local abscess, often below the diaphragm or below the liver. Hemorrhage may occur immediately postoperatively when it is usually from the line of suture or from a bleeding unremoved duodenal ulcer. Immediate reoperation may become imperative. Dr. Hay relates hemorrhage from the Hoffmeister portion of the gastric suture line in two patients controlled by reoperation. Delayed hemorrhage is the result of autodigestion, infection or sloughing, and may be extremely vexing if not fatal. Obstruction at the site of anastomosis may be transitory due to edema which may disappear with treatment. Graham reported an instance in which a patient was treated conservatively for forty-three days before the obstruction disappeared. Lahey also noted a spontaneous cure after sixteen days. Immediate intubation of the proximal loop at the time of operation safeguards against edema with consequent tremendous dilatation of the duodenum and blow-out of its closed end. Helferty states that ten patients at the

Veterans Hospital had clinical or x-ray evidence of partial obstruction which relented without additional operation. Re-exploration may be advisable to correct a mechanical obstruction due to tortion, kinking, adhesions or herniation of the anastomosis upward through the transverse mesocolon. Cardiorenal complications and cerebral accidents are listed among the other complications. Cole[1] states that at the Illinois Research Hospital atelectasis is the most frequent postoperative complication but the highest number of deaths were from leakage of the duodenal stump and cardiac disease.

Late complications may occur because no operative procedure has yet reached perfection. Recurrent ulcer is reported by many observers in from 1.1 per cent at the University of Minnesota to 11.4 per cent at the Lahey Clinic. Merendino demonstrated conclusively in laboratory animals that short loops resisted the ulcerating effect of histamine in beeswax better than long loops. Lannin thought the difference in the rate of marginal ulcers at the University of Minnesota and the Lahey Clinic was due to the length of the jejunal loop. Steinberg, after a study of 107 patients with anastomotic ulcer, reasoned that none had had an adequate resection as measured by Wangensteen's criteria. It is noted that marginal ulcer seldom follows resection for gastric ulcer. This is attributed to the great difference in hydrochloric acid levels in the presence of gastric and duodenal ulcer before operation. Allen and Welch reported poor results in 7 per cent of a series of 129 patients after subtotal resection. Three instances (2.3 per cent) were due to recurrent ulcers. Finsterer and others stated in the presence of adherent and perforated ulcers without obstruction of the duodenum that it was safer to divide the stomach proximally and invert the distal end. Lahey at one time endorsed this procedure. However, the large number of patients who soon developed recurrent ulcer made it imperative that this method be discontinued. Kiefer of the Lahey Clinic later reported 23.3 per cent marginal ulcers following the Finsterer exclusion operation. Division of the stomach proximal to the pylorus accompanied by removal of all of the gastric mucosa in the remaining prepyloric segment, obviates the operative hazard and the occurrence of anastomotic ulcer. Gaviser reports gastrojejunal ulcer in 1.8 per cent of fifty-five patients who had Bancroft-Plenk operations. Makkas and Marangos[1] reported 243 operations by the Bancroft-Plenk method with a mortality of 2.3 per cent but with no evidence of recurrent ulceration. Gaviser adds that of 231 patients followed, who had subtotal gastric resections, only 2.86 per cent were found to have recurrences. Analysis of these two recurrences at reoperation showed inadequate stomach removal in one and a longer proximal loop than usual in the other.

Among the complications following resection of the stomach is the so-called dumping syndrome. This condition also occurs following gastroenterostomy. There is a more or less constant symptom complex consisting of a feeling of warmth, sweating, tightness or pain in the epigastrium, nausea, weakness, palpitation, vertigo or collapse. Machella[1] observed sixteen patients who had these symptoms following subtotal gastrectomy. He believes these symptoms are caused by distention of the jejunum due to outpouring of fluid from the jejunal wall in an attempt to dilute hypertonic food material passed along by a nonretentive stomach. Although hyperglycemia may be demonstrated during the symptom period, it is not the causative factor, as the symptoms do not occur following intravenous glucose injections. Although symptoms of dumping syndrome can be produced by balloon distention of the bowel, other conditions must prevail. He believes that ingredients of high osmotic pressure such as sugar, salt or protein products must be present in the meal.

The percentage of dumping stomachs after subtotal gastrectomy varies greatly in different clinics. Garlock, in 187 cases, found 1.6 per cent. Helferty at the Veterans Hospital, in 58 cases, found 24 per cent. Gaviser,[2] in 416 cases, found 2.6 per cent. Many patients experience this complex for only a short time and in minimal degree. At the Veterans Hospital 92.1 per cent of patients who had subtotal gastrectomy were able to carry on their work as well or better than before operation. The writer cannot recall a single instance in which the patient went on to vertigo or collapse. In most instances relief is obtained by atropin, by the restriction of fluids with meals and by assuming the reclining position which permits food to return to the gastric pouch. Only rarely is this complaint severe or disabling. Hay confirms this in his Annual Review of Surgery Service for 1949 when he states that dumping syndrome occurred to some degree in twenty-eight out of seventy-one patients but only one required rehospitalization twice since his operation.

It is obvious that there must be changes in the physiology of digestion after removal of 75 per cent of a stomach. Reduction of capacity, reduction of or elimination of hydrochloric acid from the gastric pouch, increased emptying time, increased activity of the intestines, et cetera, occur, but most important of all are these physiologic changes detrimental to health and other bodily functions. In their reviews Gaviser and Helferty place their conclusions on numerous examinations as to the effect on hemoglobin, postoperative hydrochloric acid values, food tolerance, weight maintenance, work tolerance, et cetera. The hemoglobin determinations for six to thirty-six months reviewed by Helferty in ninety-three patients show five below 11 grams. Of these, two had tuberculosis, one who had a total gastrectomy had an unclassified anemia before operation and has required transfusions since, and two others had simple anemia which responded to treatment. There was no case of the pernicious anemia type.

In a comparison of free hydrochloric acid values before and after resection for duodenal ulcer, Gaviser found the average preoperative free acid values to be 71.5 degrees, while postoperatively, 85.6 per cent had none. Only 7.4 per cent showed free acid above 31 degrees. Helferty's review of a group of forty-seven patients examined after subtotal gastrectomy for duodenal ulcer showed 91 per cent to have no free hydrochloric acid.

Food intake was investigated in 364 patients, of whom 244 (67 per cent) enjoyed regular meals, ninety-five (26 per cent) ate three meals with supplementary feedings, and twenty-five patients (6.5 per cent) ate frequently because they could not tolerate enough at one time. Only 4.4 per cent required dietary restrictions for multiple foods.

Weight maintenance was variable. Helferty's statistics show that the great majority are below their normal weight at the time of operation and usually remain below normal after gastric resection.

In an analysis by Helferty of 113 patients, 85.5 per cent were improved as regards employability as a direct result of their operation. Gaviser's review of work records showed that 91.5 per cent of men were engaged in regular employment. Only 1.4 per cent were unable to do regular work because of difficulties related to their postoperative condition. Of the women, 98.3 per cent were engaged in regular employment.

Adequate resection and retrocolic anastomosis by the short jejunal loop, with or without removal of the duodenal ulcer, is the most successful surgical procedure at this time. It would seem that it produces the greatest likelihood of cure by correcting the prime cause of ulcer. The immediate mortality is low and the immediate disability and period of hospitalization are short. Postoperative effects are primarily good, and those ill effects which do occur are usually not severe enough to prevent return of patients to their original occupation. Statements directly from patients in answer to questionnaires classify their results as 96 per cent excellent, good or satisfactory.

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AN EVALUATION OF THE RESULTS OF VAGOTOMY IN THE TREATMENT OF PEPTIC ULCER

MARTIN NORDLAND, M.D., MARTIN A. NORDLAND, M.D.
Minneapolis, Minnesota
and
CLARK MARSHALL, M.D.
Crosby, Minnesota

It is asserted by many authors that patients with peptic ulcer are coming for treatment in increasing numbers. The surgical management of this disorder is concerned with the complications related to the ulcer, or for the relief of symptoms of the intractable ulcer not controlled by medical management.

The objective of the internist and the surgeon alike is to free the patient from his disease and return him to his normal place in society. The differences in the viewpoint of the method of treatment have created much controversy. Attention in the literature has been focused mainly on technique in all fields of therapy. The discussion as to whether the internist uses alkalies, midnight aspirations or enterogastrones is exactly the same as the question of whether the surgeon shall do a pyloroplasty, gastroenterostomy, resection or vagotomy. Such questions of technique are important to surgery where they may influence the mortality, but the most important question is "has the treatment cured the disease?"

Before the year 1920, pyloroplasty or gastroenterostomy were the operations of choice. By 1925, Berg and deQuervain had adopted a subtotal gastric resection to replace the older procedures. By 1945, resection was the operation of choice. Because of an appreciable mortality of at least 3 to 5 per cent, as well as some poor functional results with gastrectomy, Dragstedt reintroduced the vagotomy operation in 1943 as a simpler and safer method for treatment of peptic ulcer. He believed that by abolishing the cephalic or psychic phase of secretion by vagotomy, it would reduce the excess acid secretion sufficiently to permit the healing of the peptic ulcer. Since that time, the operation has been performed in hundreds of cases with apparently good results. Many of these reports of good results have come from reliable and conservative sources. Time has revealed that the enthusiasm created by the apparent success of this operation caused the pendulum to swing too far in favor of the choice of this procedure. Vagotomy was never intended to be a cure-all for patients with peptic ulcer, and much useless discussion has been indulged in because of this wrong impression. Our interest in the treatment of peptic ulcer by vagotomy was aroused early in 1945 when Dr. Dragstedt recommended this procedure in a paper he read before this society in January of that year. Dr. Dragstedt at that time presented a report of a large number of patients with peptic ulcer treated successfully by vagotomy. He also presented evidence relative to the physiological effects of this operation. Because of this evidence and Dr. Dragstedt's reputation as a surgeon and physiologist, we felt justified in adopting vagotomy for the treatment of some patients with peptic ulcer.

Follow-up Study

Our evaluation of this operation was gained from using this procedure in 121 consecutive cases of peptic ulcer in private practice. A careful follow-up study of the first fifty cases was conducted by Dr. Clark Marshall, then a third-year resident at the hospital. The average length of time from operation to the follow-up was sixteen months, the shortest eight months, and the longest thirty-five months.

In the study, each patient was personally interviewed and one or more complete x-ray studies of the stomach were made. We found that interviewing patients without a follow-up x-ray study would have been very misleading. Several patients clinically were well. On examination of their x-rays, there was evidence of small gastric ulcerations. Only those patients who showed evidence of recurrence of ulcer or still complained of ulcer symptoms were subjected to the insulin test. Patients with a gastroenterostomy who showed recurrent gastric ulceration were not given the insulin test. After attempting a test in two such patients, it was seen that the reflux of material from the jejunum rapidly neutralized the gastric acidity and invalidated the test. It was felt that such a follow-up was entirely adequate to enable one to evaluate clinically the result of the operation.

Classification of Results

In order to gain a picture of the over-all results in this series, we have evaluated the individual results in each case and then placed them in one of three groups. The first group contains only those patients which could be classed as having had an "excellent" result. Only those patients who have returned to a completely normal existence are included. These patients are now entirely free of pain and show no evidence of bleeding. They are able to eat without reservation. They now can work without interruption and they show no distressing side effects that are associated with vagotomy. The x-ray studies of the patients in this group show no evidence of active ulcer, and the stomach functions normally. In other words, they are well as far as can be determined.

In the second group are patients who are classified as a "fair" result. In this group are included the patients who have some of the minor distressing symptoms associated with vagotomy. They feel much better, and are pleased with the result of the operation. These patients also have healed lesions as evidenced by x-ray studies. Also included in this group are patients who could have been classified clinically as "excellent" results; yet, on x-ray examination, they show evidence of small asymptomatic gastric ulcerations or erosions, which appear to be quite shallow. Also, one patient is included who has an excellent clinical result with no x-ray evidence of recurrence of his ulcer, but who occasionally shows some blood in his stools. We felt it would be wrong to classify these patients as "poor" results since they are so much improved over their preoperative condition, and are fairly well pleased with the result.

In the third group are placed those patients who have a "poor" result. These few patients have x-ray evidence of recurrence of their ulcer with all the symptoms of pain, et cetera, or they still have their typical ulcer pain without x-ray evidence of recurrence of the ulcer. They feel they have derived no benefit from the operation. Included also are some patients in whom the side effects of the vagotomy are so distressing that they feel worse than before.

TABLE I. STUDY OF 50 CASES TREATED FOR PEPTIC ULCER BY VAGOTOMY

Type of procedure	
I. Transthoracic vagotomy (9)	
A. previous gastroenterostomy (4)	
B. Subsequent gastroenterostomy (5)	
II. Transabdominal (9)	
A. With gastroenterostomy (8)	
B. With excision of gastric ulcer (1)	
X-ray evidence of active ulcer	All cases 50
Age	
Major group	30 to 50 years
Oldest	60 years
Youngest	28 years
Sex	
Male	42
Female	8
Duration	
Average	13 years
Longest	40 years
Shortest	2 years
Reason for coming for operation	
I. Inability to control symptoms by diet and medical regime.	
II. Intractable pain	47
III. Preoperative bleeding (Non-bleeding at time of operation)	21
A. Severe massive (Requiring transfusions)	11
B. "Painless bleeders" (Moore)	3
IV. History of previous perforation	4
Choice of operation	
I. Transthoracic	4 hour emptying time chosen. No history of retention.
II. Transabdominal—	
A. Vagotomy plus gastroenterostomy for delayed emptying	
B. History of retention	
C. To excise gastric ulcer	
Mortality	None

After evaluating each case, with personal interviews and postoperative examinations, the following classification was made. There were thirty-seven patients (74 per cent) who were classified as having had "excellent" results. There were eight "fair" results (16 per cent) and five "poor" results (10 per cent). A further breakdown of these cases is seen in Table I.

Discussion of Results

Very little discussion of the cases with "excellent" results is necessary. Some comments should however be made about them. The change in the condition of these patients was quite dramatic and almost unbelievable in some. It was most gratifying to hear a patient tell how good he felt and how much he could eat, when for twenty years he had struggled along, a veritable ulcer cripple. One can only hope that such a result will be permanent. So far, there is no reason to feel that such will not be the case. The average weight gain was 12 pounds in this group with "excellent" results. There was no loss of weight except in two patients who had been markedly overweight, due to drinking milk in large amounts preoperatively.

The patients with "fair" and "poor" results should be discussed separately. A more careful selection in the future will help to avoid such poor results. Three of these patients are grouped together because they are all very much alike. They are clinically improved; yet on x-ray examination, small gastric ulcers or erosions were seen.

A discussion of these cases of recurrent asymptomatic gastric ulcers and bleeding following vagotomy is of interest, since other people have made similar observations. Dragstedt reports one such case. L. M. Asher, reporting on the gastroscopic findings after vagotomy, mentions six cases of gastritis with gastric erosions following vagotomy alone, and three cases in patients whose vagotomy was combined with gastroenterostomy. However, he does not mention whether gastric insulin tests were made to determine the completeness of the vagotomy. Nevertheless, there was definitely a change from the preoperative condition of the gastric mucosa. Asher cites the work of other investigators, and concludes that there are probably three factors which may contribute to the production of the gastritis with gastric erosions he observed after vagotomy. First of all, there is left an unopposed vasoconstrictor state that produces in the wall of the stomach a condition of relative circulatory insufficiency, which renders the mucosa more susceptible to trauma. Secondly, he feels that the lowered mucin production found after vagotomy again offers less protection to the gastric mucosa. Thirdly, the delayed emptying time of the stomach prolongs the physical trauma caused by food in the stomach. It may be that these factors which contribute to the production of gastritis and gastric erosions postoperatively are merely transitory like other side effects seen following vagotomy. And so, with proper care, they can be controlled until the stomach returns to a more normal physiologic state. However, in one of our patients who developed a gastritis and gastric erosion, a positive insulin gastric test was found, indicating there was still some vagal or parasympathetic stimuli reaching the stomach. It is possible, then, that the cephalic phase of secretion was still partially present and therefore capable of producing a gastritis with ulcerations in the mucosa of a partially denervated and therefore functionally impaired stomach. Perhaps if these patients were subjected to another operation in an attempt to divide more vagus fibers possibly overlooked at the first operation, a better result might be obtained. The possibility that this is the first manifestation of an atrophic gastritis was also mentioned by Asher. This may be the group on whom we cannot expect vagotomy to produce a complete cure, as suggested by F. D. Moore. They may be considered as that group in which the vagotomy operation has made their ulcer symptoms easier to control, and they will be forced to follow a liberal bland diet in order to remain well.

The four other patients who were classified as having had only "fair" results have shown no evidence of recurrence of ulcer or bleeding; but they have other complaints which perhaps are related to the operation, and which cause distress and make them feel they have not had a good result.

From the case histories of these patients, we can conclude that two are definitely neurotic individuals, and further improvement cannot be expected. The other two, perhaps, are still having the side effects of vagotomy which affect the colon, and further improvement may be looked for. In all four, the major complaint was improved by the operation.

TABLE II. PHYSIOLOGIC EFFECTS OF VAGOTOMY ON PATIENTS WITH PEPTIC ULCER FIFTY CASES

I. Disappearing of pain (most gratifying result)	
A. 44 out of 47 relieved of pain	94%
B. 3 not relieved (Always incomplete vagotomy)	
II. Diarrhea following vagotomy	
26 cases	52%
9 cases could not work	18%
A. Average onset	Postoperative
One week to one month	
B. Average duration	2 to 3 months
C. Longest duration	9 months
III. Gastric retention	
A. Type of retention	
1. 5 out of 37 transthoracic vagotomy alone or 13% necessitating gastroenterostomy.	
2. 9 out of 37 cases or 19% x-ray evidence or retention, no symptoms.	
B. Cause of retention	
1. Decreased tonus	
2. Diminished peristalsis	
3. Scar at duodenum	
4. Pylorospasm	
IV. Belching, epigastric fullness	
A. 32 cases	64%
B. Foul smelling gas	3 cases
(Only 9 out of 32 cases—18%—complained about it)	
C. Duration	Longest 6 months
V. Cardiospasm or symptoms of esophageal obstruction	5 cases (10%)
A. Complete obstruction	2
For 24 hours	
B. Cardiospasm	3
Relieved in 4 months	
All distressing side effects except retention disappeared	

There are five patients classified as having had "poor" results. Only two of these showed x-ray evidence of recurrence of their original lesion. One other patient had recurrence of ulcer pain with bleeding, and the remaining two had symptoms relating to their vagotomy that are distressing enough to make us feel the result was poor.

From the individual examination of the "poor" results, we felt that three were undoubtedly the result of incomplete vagotomies. Of the remaining two, one, a nervous liquor salesman who was in the process of getting a divorce, was considered "poor" because of the side effects of the operation. The other "poor" result is a female who insists she is not well in spite of x-ray evidence that the ulcer no longer exists.

Physiologic Effects of Vagotomy on Patients with Peptic Ulcer—Fifty Cases

Much has been written about the physiologic effects of vagotomy and their causes. A brief application of these effects in this series of patients is interesting.

Disappearance of Pain.—Out of the forty-seven patients who had pain preoperatively, forty-four (94 per cent) were relieved of the pain by the operation. This is the most gratifying result of the operation as far as the patient is concerned, as well as the best indication that the operation was a success. The three patients who were not relieved of pain revealed after further investigation that the vagotomy was incomplete. There is no doubt that pain in peptic ulcer is due to hyperacidity and hypergastric motility. Therefore, the mechanism by which the vagotomy operation relieves the pain becomes clear. Without this relief, the vagotomy must be considered incomplete.

Diarrhea.—Diarrhea following vagotomy has frequently been reported. In this series, twenty-six patients (52 per cent) developed a diarrhea postoperatively. In nine patients (18 per cent) it was of sufficient duration and severity to cause the patient discomfort and inconvenience in carrying out his daily work. The average onset of the diarrhea was about one week to one month following vagotomy. The average duration was two to three months. The longest it persisted in any one case was nine months. Since the usual story was that the diarrhea improved as the interval from the operation increased, most of the patients were easily reassured and were not inclined to complain about it. The diarrhea, when present, was difficult to control. No satisfactory explanation has been given as the cause of this complication. It is interesting that constipation is no longer a problem with most of the patients. Indeed, many remarked that relief of constipation is one of the more gratifying results of the procedure. We feel that, with only 18 to 20 per cent of patients affected, diarrhea is not a serious problem, since all patients improve with time.

Gastric Retention.—Only five patients out of thirty-seven (13 per cent), who had had thoracic vagotomy alone, developed gastric retention of a degree severe enough and persistent enough to necessitate a secondary gastroenterostomy. This corresponds to a figure of 12 per cent reported by other groups. This number possibly could have been reduced with more careful preoperative selection, more careful postoperative feeding and more vigorous therapy. By x-ray examination, only seven out of thirty-seven cases, or about 19 per cent of the thoracic vagotomies, showed any retention at four hours at the time of follow-up, and this was asymptomatic. Decreased tonus, diminished peristalsis, scarring of the duodenum secondary to the healing of the ulcer, as well as pylorospasm, must be considered factors in the cause of retention.

An accurate method of choosing patients so as to avoid gastric retention has not been satisfactorily developed. The patient should be evaluated preoperatively. If it is felt that serious retention will develop following a vagotomy, we would advocate a gastric resection for such patients, rather than a vagotomy combined with gastroenterostomy. We are not yet convinced that the combined operation is a good procedure.

Belching.—Belching, epigastric fulness and excess gas were encountered as postoperative symptoms in thirty-two cases (64 per cent of the patients). In only three patients was there a complaint of belching foul-smelling gas. In these three cases, it did not persist over six months postoperatively. In 9 patients (18 per cent) the belching and fulness were severe enough to cause them to remark about it. The remainder of the patients merely admitted that they had such symptoms, but they were not distressing.

Cardiospasm.—Cardiospasm, or symptoms of esophageal obstruction was found to be present in five cases (10 per cent). In two patients there was a history of complete obstruction of the lower esophagus following the ingestion of food, and lasting for more than one day. In one patient a piece of meat became lodged in the lower esophagus for two days, and required chemical dissolution before further food could be taken. The other spontaneously relented. In three cases, the symptoms of cardiospasm were still present at the time of follow-up. We feel that it is a true cardiospasm, since the patients state that if they drink some warm water in the morning before attempting to eat, they seemed to have no further trouble. Still this would not rule out some peristaltic dysfunction of the lower esophagus. Ritvo and Shauffer showed that there was x-ray evidence of true cardiospasm. Machella and Lorber also reported a case of esophageal obstruction following vagotomy. In none of the patients in our series was the cardiospasm of any distressing degree.

Most of the physiologic side effects of vagotomy for peptic ulcer, while distressing, gradually diminish in severity and are forgotten by the patient.

Psychosomatic Aspects

The patients in this series were all closely questioned concerning any improvement in their nervous symptoms. Approximately thirty-seven patients (74 per cent) said they were definitely improved, and about half of these said they were markedly improved. That is, they were calmer and easier to get along with. They could work harder, and they could face their daily problems without causing some reaction in their stomach. One patient said he now could talk with his boss without feeling afraid, something he had been unable to do for fifteen years. Another patient, a labor organizer, said he now could bargain the most difficult labor contracts with no effect on his stomach. "It was as if my stomach was now cut off from my head," he stated. About thirteen patients showed no improvement, or else an increase in their nervous symptoms. As would be expected, they were in the groups of patients classed as only "fair" or "poor" results, and thus had no reason to show improvement regarding their nervous symptoms.

The patient who said his stomach was now cut off from his head really describes what is felt to be the most important reason for the improvement the vagotomy operation gives. We cannot deny, therefore, that one of the reasons that vagotomy causes healing of peptic ulcers is that it destroys the relationship between emotional stimuli and changes in the gastric mucosa.

Conclusions

From this study and other studies reported in the literature, we gain the impression that the results of vagotomy alone performed for peptic ulcer in the selected cases are generally quite good. We agree that it may yet be too early for a good evaluation. A composite study of reports by F. D. Moore, Collins and Stevenson, and Smith, Ruffin and Baylin, shows that excellent results are obtained in about 75 to 85 per cent of cases, and satisfactory results in about 90 per cent of cases. Recurrence rates vary from 4 to 6 per cent, with unsatisfactory results usually totalling about 10 per cent. The over-all results in our series of cases closely parallels the above figures. Perhaps our results are slightly poorer. With an improved technique and more careful selection of patients, we seem to have gotten better results in the seventy-one cases operated upon since this study was undertaken. We have been very careful to screen out the hopelessly neurotic and the true hypochondriac, and we have also been careful to select for vagotomy alone a two-hour emptying time instead of a four-hour emptying time. We have found that vagotomy is best for patients in the better economic level of society whose presenting problem is either incapacitating pain or repeated hemorrhage. The more definite and clear-cut the picture is, the more satisfactory the result will be. The neurotic patient with an ulcer is not a good candidate. We do not feel that the younger patients do any better than those in the middle age group. We feel that ulcers of the stomach should be dealt with by gastrectomy. On the whole, we feel that vagotomy has a place in the treatment of duodenal ulcer in the properly selected case. We believe that the transthoracic approach is by far the better method because no matter how skillful a surgeon is, we do not believe he can be sure that he has bisected the vagus nerves and branches completely. Incomplete vagotomy naturally accounts for recurrent ulcer and an unsatisfactory result. We feel that the procedure is still on trial.

Summary

We have learned from this material that vagotomy for peptic ulcer has a decided value in a limited number of well-selected cases. We believe it is the method of choice in the treatment of the patient with marginal ulcer following pyloroplasty, gastroenterostomy and in cases with stomal ulcer following gastric resection, and limited to the treatment of these conditions. For these, we prefer the transthoracic approach. From our study, I believe that gastrectomy is the treatment of choice for the majority of patients with ulcer.

SURGERY IN PEPTIC ULCER FROM AN INTERNIST'S POINT OF VIEW

JOHN BOEHRER, M.D.
Minneapolis, Minnesota

It is an honor to be asked to participate in this symposium on surgery in peptic ulcer. I must confess, however, that my gratification is moderated by a good deal of anxiety. I know of no subject in medicine in which disagreement has been more violent, nor one in which such symposia as this are more likely to end in hopeless confusion and completely divergent opinions regarding the problem at hand. As an example, Dr. Frank Lahey[11] concluded his discussion of a similar symposium at a recent meeting of the American Surgical Association with the following words, "Regarding the whole discussion, I would like to say that I am old enough to have lived through many of these discussions about duodenal ulcer. While I would like to agree that I have learned a great deal in this discussion, I would still like to say that following this one, I find the problem still far from standardized, and one which could still leave one quite confused." I believe that any one who naïvely expects to find certainty in the vast mass of literature on this subject will agree wholeheartedly with Dr. Lahey.

But, it is equally clear that the patient with peptic ulcer cannot wait for our contrary opinions to be resolved. Each of us who is charged with the responsibility for his care must have a framework of reference for the day-to-day decisions on which his welfare depends. Even though we may disagree, the very act of verbalizing our opinions serves to organize them, to test them, and in that way cannot help but contribute to the welfare of the patients whom we serve.

With some misgivings, therefore, I would like to discuss briefly, three questions in this field, from the internist's point of view. These are:

1. Which of my patients with peptic ulcer shall I refer to the surgeon?

2. What type of surgical procedure shall I recommend?

3. What is the nature of the complications which may follow such surgery, and how shall I manage them?

Selection of Patients for Surgery

There is no disagreement as to the extent of the ulcer problem.[1] Some 375,000 individuals *monthly* seek medical care for it. At least 10 per cent of the population will suffer from it, and of these, 15 per cent will require surgery for their disease. The question is, which 15 per cent? Except for a few reports remarkable mainly for their courage, there is general agreement about the wisdom of operation for perforation, such operation to be as extensive as the condition of the patient permits. The chronically obstructed ulcer is also surgical. This also applies, in my opinion, to ulcers which have temporarily obstructed but have been relieved by medical means. They will obstruct again, and operation should be performed before the reprieve runs out. The massively bleeding ulcer requires a symposium by itself, since its management is so bitterly contested by surgeon and internist. Since the emphasis in this symposium is on other aspects, however, I will limit myself to stating my opinion that the internist who fails to enlist surgical aid within forty-eight hours of the onset of such massive bleeding must accept the full responsibility for success or failure thereafter. Deaths following late operation here are properly medical, not surgical deaths. Similar reasoning places similar responsibility on the internist who treats medically a gastric ulcer which does not heal completely in six weeks or which recurs. The term "peptic ulcer," which implies basic similarity between gastric and duodenal ulcer, is a handicap to good management. Statistical support is available for this position, but time does not permit its presentation now.[1]

The chief problem with which we have to deal in this regard is the so-called "intractable ulcer." Full comprehension of this entity necessarily implies full comprehension of the etiology of ulcer, which has not yet been attained. Therefore each of us must have his own definition of "intractability," in order to have a basis for action. This definition is ordinarily phrased as "failure of medical treatment," but the criteria of failure in uncomplicated ulcer have so far resisted precise delineation. The best answer, it seems to me, must stem from a knowledge of the natural history of duodenal ulcer on the one hand, and from a conscientious effort to apply all the elements of a good medical regime on the other. With regard to the first, no internist can afford to be complacent about the long-term results of medical therapy for duodenal ulcer. To put it bluntly, they are very bad indeed.[1,18] The over-all mortality is at least 3 per cent, and at least 40 per cent will have recurrence within five years. At least 10 per cent will have a serious complication requiring operation, with additional mortality. It is imperative that the clinician bear these facts in mind since his judgment for or against surgery, if it is to make any sense at all, must weigh the risk of the disease against the risk of surgery.

On the other hand, it is clear that at least 30 to 50 per cent of duodenal ulcers, under the best medical management, can be cured, and stay cured.[1] The details of medical management are not under discussion here, but I believe it is safe to say that the physician who is searching for the master combination of diet, anti-acids, antispasmodics, hormones, sedatives, "medical vagotomy," plus prohibitions of tobacco, coffee, alcohol, plus the rest of the long list of once popular remedies, is chasing a will-of-the-wisp indeed. Doubtless many of these are important, but as accessory factors only. I believe the majority of internists to be convinced that proper and successful therapy of duodenal ulcer can only be attained by the fullest knowledge of the individual and his life situation.[8] Let me emphasize that this is not just psychosomatic medicine, nor does it necessarily imply acceptance of Freudian concepts of dependent-aggressive conflict as the sole etiology of ulcer. It means rather the realization of the prime importance of stress, whether physical, emotional, or economic, and a sincere attempt to either eliminate it, or to alter the individual's reaction to it. The fundamental basis for this concept is to be found in the studies of Stewart Wolff.[21]

It is obvious that many ulcers have healed, and have stayed healed, without anything more than textbook diets and medications. But in many others, the "intractable ulcer" represents either the "intractable patient" or the "intractable physician." In either instance, we must learn to recognize the failure before it is irretrievable, even by paying the price of surgery. Each of us must work out his own rule of thumb. In a thoughtful paper, Moore,[15] of Boston, has set up three primary and two secondary criteria for operation which seem quite rational. The three primary are: (1) a history of perforation in the past, with present symptoms; (2) a history of acute hemorrhage requiring transfusion; and (3) progressive pain over a two-year period while under treatment. The two secondary are: (1) a male with ulcer symptoms under the care of a physician, and (2) a male with a history of onset before twenty or after sixty-five. With one primary and one secondary criterion present, surgery is advisable. If three criteria are present, operation is urged. Such formulations are useful, as measuring sticks, and as checks on the temporizing policies which so often lead to disaster.

Selection of a Surgical Procedure in Ulcer

The internist then, having made the decision for surgery in a particular instance, must in most cases make a recommendation as to the type of operation to be employed. His judgment here, while obviously based partly on his previous experience, must also reflect the accumulated experience of others, as well as the personal bias he has acquired as an incident to his training. Dr. Maxeiner and Dr. Nordland have presented their experience in regard to gastric resection and vagotomy, respectively, and no doubt the pros and cons from the surgical point of view will be discussed extensively in a few minutes.

I can summarize my own postion briefly by saying first that it is difficult for anyone who has had even a portion of his training at the University Hospitals to advocate anything but fully adequate gastric resection as the procedure of choice. Ten years of experimental surgery, based on the fundamental discovery of the histamine-beeswax ulcer, supported as they are by a huge clinical experience with a mortality of 3 per cent, and a recurrence rate of less than 1 per cent, give Wangensteen's opinions[18] a foundation which has not been successfully challenged to date. Vagotomy alone, as an alternative, has been abandoned everywhere, except perhaps for marginal ulcer in which further resection is undesirable or impossible. Vagotomy plus gastroenterostomy as now advocated by Dragstedt,[4] by Grimson,[7] and by Crile,[2] has had insufficient time to prove itself, especially when one reflects on the original enthusiasm for gastroenterostomy alone. It will be remembered that Judd[9,10] originally reported in 1921, a recurrence rate of 1.2 per cent in 4,000 cases of ulcer treated by gastroenterostomy, but was later forced to revise this to 25 per cent. So far, its main value would appear to be in the poor risk patient. The several published reports of resection combined with vagotomy have not so far presented any remarkable advantages.

To an observer somewhat on the sidelines, Dragstedt's chief contribution would appear to be the tremendous impetus his work has given to furthering our knowledge of the factors controlling gastric secretion, as well as the motor functions of the gastrointestinal tract. It seems reasonable that further refinements of the resection technique will be developed, possibly along the lines of more physiologic anastomoses, which might enhance the secretin effect, as well as lessen the incidence of postgastrectomy nutritional difficulties. For example, there is some evidence that a modern revision of the Billroth I procedure may offer certain advantages if sufficient mobilization and adequate resection can be obtained with such modification.[20] In any case, the better than 90 per cent satisfactory results following a well-done resection will appear to the conservative internist as the procedure of choice, for the present at least.

Complications of Ulcer Surgery and Their Management

As in most surgical procedures, gastric resection may be followed by undesirable sequelae. I would like to briefly discuss three: potassium deficiency, the so-called dumping syndrome, and postoperative malnutrition. The first of these, potassium deficiency, is, of course, not directly related to surgery as such. We have been impressed, however, as have others, with the relative frequency of this syndrome, when looked for, especially in the preoperative and postoperative care of the obstructed ulcer. Prolonged loss of gastrointestinal secretions and parenteral feeding sets the stage, to be followed by weakness, hypotension, and irregular, shallow breathing. The discovery of a hypochloremic alkalosis often with oliguria, brings additional glucose and saline into the picture with further aggravation of the potassium deficit, with drowsiness, edema, cardiac arrythmias, and loss of tendon reflexes. Fortunately, the seldom-available serum potassium determination is neither necessary nor even an accurate measure of the true state of affairs. Characteristic electrocardiogram changes confirm clinical suspicion, as does the response to potassium, which is prompt. Parenteral potassium must be administered with great caution, however, especially in patients with oliguria, because of the toxic effect of even temporarily high potassium concentrations on the heart muscle.

The "dumping syndrome" has been extensively studied in spite of its rather infrequent occurrence following resection, averaging around 5 per cent, because of the acute and temporarily disabling discomfort it produces, as well as the considerable disagreement as to its cause. The abrupt onset, while eating, or a few minutes after, of intense epigastric warmth, fullness, followed by a cold sweat, nausea, palpitation, weakness, dizziness, and occasionally vomiting or diarrhea, made a striking syndrome which was quite reasonably thought to be due to sudden distention of the jejunum. Later, however, the discovery that the rapid emptying of the stomach led to abnormal glucose tolerance curves, with high postprandial values, and frequent hypoglycemic values two to three hours later, produced a good deal of confusion. The syndrome was then ascribed to the hyperglycemia until it was noted that identical values occurred in those without the syndrome. Then the hypoglycemia was incriminated, although it was obvious that the attacks occurred before the hypoglycemia, although occasional patients also presented rather typical hypoglycemia symptoms in addition to and following the dumping syndrome, and which were relieved by food. Recently, Machella[12] has clarified the situation somewhat by proving fairly conclusively that the main cause is the ingestion of hypertonic liquids, especially sweets and milk, to which so many of these patients are intolerant following gastrectomy. These cause a rapid outpouring of liquid from the efferent loop which distends it, and produces the attack. Omission of sugar and liquids from meals is most important. Atropine, in contrast to the experience of others, including myself, appeared to prevent the attacks. It is still not clear why some individuals develop this syndrome and not others. At the Mayo Clinic,[3] it was felt that the large stoma of the Polya type of anastomosis was a factor, and that their cases were less severe following a change to the Hofmeister type. This may explain the small incidence in the University series also.

The hypoglycemic phase is an interesting one, since similar exaggerated responses to carbohydrate intake are an increasingly frequent finding in nonoperated individuals with the complaint of intermittent severe exhaustion, Portis[17] having noted it in 42 per cent of a series of "tired" executives. This functional disorder is thought to be one of the many ways in which nervous stress can produce physical change, possibly in these cases from mild adrenal failure. The profound effects of ACTH noted by McQuarrie[14] on idiopathic hypoglycemia in children suggest the possibility of similar trial in these patients, many of whom may well represent partial failures of the adaptation mechanism. It is interesting to speculate also on the possible effect of this mechanism in producing recurrence in those resections without resultant achlorhydria, since its effect is similar to an "insulin test" for achlorhydria.

The third complication occasionally seen after gastrectomy is persistent under-nutrition, often accompanied by a low-grade but persistent diarrhea. While many of these individuals may well represent some variety of failure of adaptation also, there is the suggestion of Muir[16] in England, that low-grade steatorrhea, possibly related to inadequate secretin effect, may be responsible. With vagotomy, this type of symptomatology, especially diarrhea, is much worse, suggesting the additional factor of autonomic imbalance. In this connection, it is interesting to note that Wangensteen[19] found the removal of the superior mesenteric ganglion as an adjunct to total gastrectomy was of considerable benefit in relieving postprandial distress. I know of no trials of sympathetic inhibiting drugs in these states, but it is doubtful that they could suppress the splanchnic pain pathways completely.

In closing, I should like to say in all sincerity, that if we in medicine had been able to match the contributions of surgery in the past decade, the problem of ulcer would be much farther on the road to its ultimate solution. The surgeons, especially the surgeon-physiologists,[13] are to be congratulated.

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Discussion

Dr. L. J. Hay, Minneapolis VA Hospital.—We know that a small amount of acid will cause secretin to be formed in the small intestine and duodenum with subsequent stimulation of the pancreas. There is also evidence that less fat is lost into the stool after the Billroth I type of anastomosis. Since failure to maintain weight is the major defect in subtotal resection we have been doing a Billroth I operation whenever it is feasible. It is too early in our experience to be certain, but the initial impression is that these patients have a shorter period of adjustment and less "dumping" syndrome after this procedure.

Dr. Nordland mentioned the problem of selection of patients, especially psychoneurotics. A fairly large number of ulcer patients have a psychoneurosis. These patients are less likely to have a satisfactory result either from operation or from non-operative treatment. We have accepted any patient with bleeding of a severe, or moderately severe degree, as well as those who have evidence of obstruction. Likewise those patients requiring repeated hospitalization for therapy, in whom a definite ulcer crater could be seen, were accepted.

Dr. Kenneth Helferty reviewed 178 patients who had a resection at our hospital. He found that severe intractable postoperative symptoms were confined to psychoneurotics. The four men classified as having severe "dumping" had been diagnosed as severe psychoneurotics. Six of the fourteen who had moderate symptoms had a moderately severe psychoneurosis. Only two of the fifty-nine patients who had mild postprandial distress were psychoneurotics.

Two of the 178 patients developed gastrojejunal ulceration and both were cured by vagotomy. Fifty-six per cent of these men were achlorhydric six months after operation. About 90 per cent of the patients were better after operation and can be considered to have obtained a satisfactory result from surgery.

Eighty per cent of the patients operated upon showed an improvement in employability, and only three patients showed a decreased ability to work.

Dr. F. M. Owens, Jr., Saint Paul.—I do not have a rebuttal and am quite willing to grant that gastric resection in the majority of instances is certainly the operation which accomplishes what we are attempting, that is, it eliminates the acid. However, I feel that there is a place for vagotomy; and when I speak of vagotomy, I mean vagotomy and posterior gastroenterostomy. The reports of Dr. Walters of his results with this operation do not correlate with our experience at the University of Chicago.

In a period of five years after simple gastroenterostomy 25 per cent of our duodenal ulcer patients had recurrence of ulcer or stoma ulcer. This incidence of recurrence has not been found when gastroenterostomy and vagotomy have been done together. The incidence of recurrence here is less than 8 per cent. Our statistics show that the incidence of excellent results in the group with transabdominal vagotomy and gastroenterostomy was 26 per cent greater than in the group done transthoracically without gastroenterostomy. Because we were unable to determine with certainty which patient would develop pyloric obstruction following vagotomy we gave up trans-thoracic vagotomy. We find we are doing a better job of getting the vagus fibers transabdominally by bringing the esophagus down through the diaphragm. Exploration of the duodenum and remainder of the abdomen is carried out and gastroenterostomy is performed.

Then there is the question of diarrhea. Diarrhea is not a direct result of section of the vagus nerves. It is a fermentative type of diarrhea which occurs because of gastric stasis. This group of patients also complains of belching "sewer gas." The diarrhea is controlled in many by sulfasuxadine, in others by the use of urecholine. This diarrhea is not seen when gastroenterostomy has been done.

There are several places where vagotomy is the treatment of choice. The first is in the patient who is a severe nutritional problem. This patient is better able to maintain his weight after vagotomy than after gastrectomy. The second is in the patient with a severely scarred duodenum. The closure of such a duodenum is often difficult and there is danger of duodenal stump blowout. The third is the patient with considerable personality instability. He is generally less apt to develop postoperative symptoms after vagotomy than after gastrectomy.

In closing let me repeat that vagotomy still has a place in our surgical armamentarium. Dr. Dragsted and Dr. Wangensteen have done a tremendous amount in contributing to our knowledge of the ulcer problem. Whatever is the ultimate solution to ulcer, both men will be remembered for their contributions.

Dr. Hamlin Mattson, Minneapolis.—It is difficult to predict the place which vagotomy will settle down to in the surgical treatment of duodenal ulcer. The period of follow-up is still too short. We have heard some bearish talk tonight on the future of vagotomy. We must consider that in the experience of large medical centers today, including the Cleveland Clinic, the treatment of choice today is vagotomy.

Though gastrectomy is the treatment of choice with most of us in this area, there is general agreement that vagotomy is applicable in marginal ulcer following gastrectomy. Still another indication seems to be the finding of considerable inflammatory reaction around the pylorus and duodenum. The risk of gastrectomy is largely the risk of duodenal leakage. If great difficulty in the closure of the stump is anticipated, it seems reasonable to resort to vagotomy and gastroenterostomy. Gastrectomy

(Continued on Page 822)

◆ Reports and Announcements ◆

AMERICAN CONGRESS OF PHYSICAL MEDICINE

The American Congress of Physical Medicine will hold its twenty-ninth annual scientific and clinical session September 4, 5, 6, 7 and 8 at the Shirley-Savoy Hotel, Denver, Colorado. Scientific and clinical sessions will be given on the days of September 4, 5, 6, 7 and 8. All sessions will be open to physicians and other professional personnel. In addition to the scientific sessions, the annual instruction seminars will be held September 4, 5, 6, and 7. These seminars will be offered in two groups. One set of ten lectures will consist of basic subjects and attendance will be limited to physicians. One set of ten lectures will be more general in character and will be open to physicians as well as to therapists who are registered with the American Registry of Physicial Therapists or the American Occupational Therapy Association. Full information may be obtained by writing to the American Congress of Physical Medicine, 30 North Michigan Avenue, Chicago 2, Illinois.

AMERICAN MEDICAL WRITERS' ASSOCIATION

The eighth annual meeting of the American Medical Writers' Association will be held at the Pere Marquette Hotel, Peoria, Illinois, afternoon and evening of September 19, during the sixteenth annual meeting of the Mississippi Valley Medical Society (September 19, 20 and 21) at the same hotel. A new constitution, which somewhat liberalizes membership requirements, but does not alter the present educational requirements, will be voted on. There will be no registration fee, and all ethical physicians and others who are college graduates, who are interested in medical writing or journalism, are cordially invited to attend. A program of the meeting may be secured from the Secretary, Dr. Harold Swanberg, 209-224 W.C.U. Building, Quincy, Illinois.

COURSE IN POSTGRADUATE GASTROENTEROLOGY

The National Gastroenterological Association is again offering a course in postgraduate gastroenterology on September 20, 21 and 22 at the Drake Hotel, Chicago, immediately following the sixteenth annual convention of the organization at the same place on September 17, 18 and 19.

Dr. Owen H. Wangensteen, chairman of the Department of Surgery, University of Minnesota, will act as surgical co-ordinator, and Dr. I. Snapper, clinical professor of medicine, College of Physicians and Surgeons, Columbia University, as medical co-ordinator.

The course is open to members and nonmembers. The fee for the former is $35, and for the latter, $50, payable on filing an application for the course with Daniel Weiss, Executive Officer, National Gastroenterological Association, 1819 Broadway, New York 23, New York.

COURSES IN EXFOLIATIVE CYTOLOGY (CANCER DETECTION)

Two courses, one from September 17 to December 14, 1951, and the other from March 3 to May 29, 1952, will be open to a limited number of physicians and technicians. They will cover the cytology of the female genital, gastrointestinal, respiratory and urinary tracts. Tuition for each course is $300. Arrangements for shorter periods of instruction, with correspondingly less tuition, may be made. Instruction will be given by Dr. George N. Papanicolaou, Dr. John F. Seybolt and their associates.

Further information and application blanks can be obtained from Dr. John F. Seybolt, Department of Anatomy, Cornell University Medical College, 1300 York Avenue, New York 21, New York.

ASSOCIATION OF MILITARY SURGEONS

The fifty-eighth annual convention of the Association of Military Surgeons of the United States will be held at the Palmer House in Chicago, October 8 to 10. Members of allied medical services such as nursing, dentistry, veterinary medicine, women's medical specialty corps, and medical service corps, as well as physicians, will participate in the sessions. Advances in military medicine since World War II, and current problems arising out of the critical world situation and the Korean conflict, will be discussed.

MINNESOTA SOCIETY OF INTERNAL MEDICINE

The fall meeting of the Minnesota Society of Internal Medicine will be held in Saint Paul on October 27. Dr. Ben Sommers, 1232 Lowry Medical Arts Building, Saint Paul, is program chairman, and abstracts and titles of papers should be submitted to him before September 27.

SOUTHWESTERN MINNESOTA MEDICAL SOCIETY

A meeting of the Southwestern Minnesota Medical Society was held at Worthington on June 11, attended by thirty physicians. Principal speakers were Dr. Wendell Hall, University of Minnesota, and Dr. William Rumbolz, University of Nebraska. Dr. Hall discussed "The Use of Antibiotics," and Dr. Rumbolz spoke on "Protamine Titration and Its Relation to Breathing."

The society members then met with the auxiliary members to watch a motion picture entitled "Here's Health—the American Way."

(Continued on Page 806)

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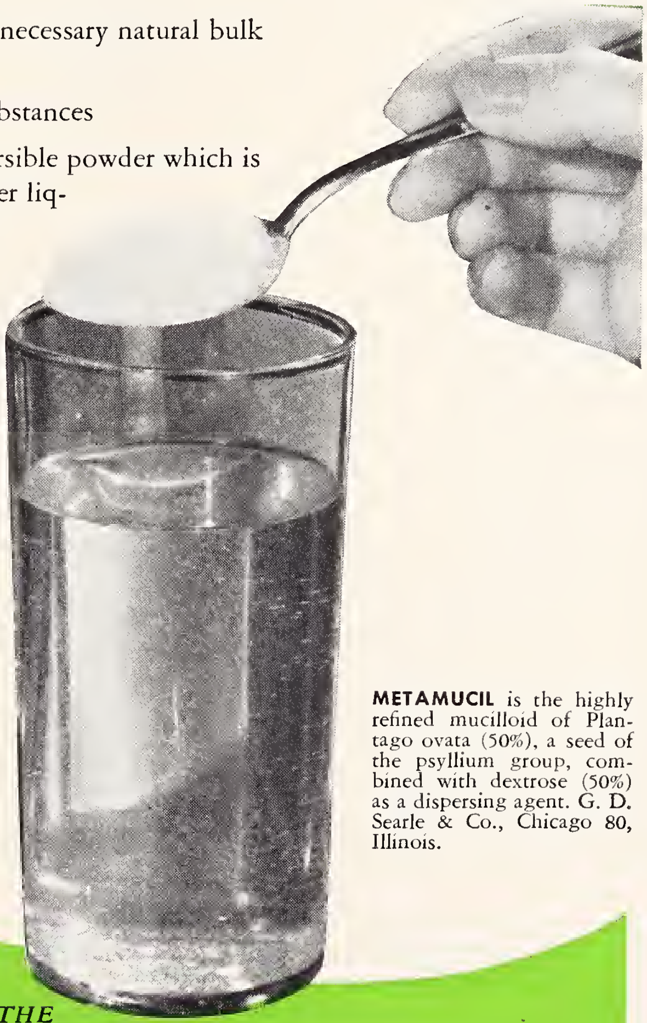

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PARK REGION SOCIETY

The Park Region Medical Society held a meeting at Parkers Prairie on June 27. Dr. James Logan, Wadena, gave a talk on x-rays and lesions of the chest. Dr. James Crowley, Saint Paul, discussed anesthesia in the poor-risk patient.

SOUTHERN MINNESOTA MEDICAL ASSOCIATION

At the annual meeting of the Southern Minnesota Medical Association to be held in Rochester, Monday, September 10, 1951, the following subjects will be presented:

"Bladder Regeneration."—E. J. Richardson, Saint Paul.

"Cystic Hygroma of the Neck in Children."—Tague C. Chisholm, Minneapolis.

"An Unusual Case of Gout."—Chas. Koeningsberger, Mankato.

"Acute Perforation of a Duodenal Ulcer After Cortisone Therapy."—Erhart E. Zemke, Fairmont.

"Cholelithiasis in Residual Gallbladder Stump."—William O. Finkelnburg, Winona.

"Surgery of Varicose Veins during Pregnancy."
(a) Obstetrical Aspects—James C. Hodgson, Saint Paul.
(b) Surgical Aspects—Frank W. Quattlebaum, Saint Paul.

"The Pathogenesis of Hypertension."—John Eusterman, Mankato.

"The Management of Early Cardiac Decompensation."—Douglas P. Head, Minneapolis.

"Hypnotherapy in General Practice."—Otto B. Fesenmaier, New Ulm.

"Recent Advances in Antibiotic Therapy."—W. E. Wellman, Rochester.

"Systemic Lupus Erythematosis—Clinicians' Problem."—Malcolm M. Hargraves, Rochester.

"Dermatoses of the Lower Extremities."—Isadore I. Fisher, Minneapolis.

"Physical Therapy" (20-minute movie).—Miland E. Knapp, Minneapolis.

"Recent Developments in the Use of ACTH and Cortisone."—Paul J. Bilka, Minneapolis.

"Atypical Appendicitis—Diagnosis and Management."—Robert E. Engstrom, Mankato.

"Clinico-Pathologic Conference."—A. H. Baggenstoss, Rochester.

CONTINUATION COURSES

Physical Medicine.—The University of Minnesota announces a continuation course in physical medicine to be presented for physicians, September 27 to 29 at the Center for Continuation Study. The course will stress the role of physical medicine in therapy in general practice. The care of fractures and arthritis will be emphasized. Symposia will be held on "The Care of the Hemiplegic Patient" and "Geriatric Problems."

Industrial Medicine.—A continuation course in industrial medicine will be held at the Center for Continuation Study on October 6. Since many general physicians and specialists devote some part of their time to industrial medicine, it is felt that this course may have a wide interest. Dr. Arthur K. Peterson, medical director of the R. R. Donnelly Company of Chicago, Illinois, will be the guest faculty member for the course. He will discuss certain visual problems in industry. Other subjects which will be emphasized include dermatitis, back injuries, and lead poisoning as industrial hazards. Prevention, treatment, and medico-legal aspects of these subjects will be discussed by industrial physicians and clinical and full-time members of the University of Minnesota.

ACTH and Cortisone.—ACTH and cortisone will be discussed in a one-day continuation course for physicians to be presented by the University of Minnesota, October 17. The present status of these agents in therapy will be emphasized. Dr. Edgar S. Gordon, associate professor of medicine, University of Wisconsin Medical School, will be visiting faculty member for the course and will also deliver the annual *Journal-Lancet* Lecture on the evening of October 17.

Chest Diseases.—Chest diseases will be the subject of a continuation course to be presented by the University of Minnesota, October 18 to 20. The course is sponsored by and given with the financial support of the Minnesota Chapters of the American College of Chest Physicians and the American Trudeau Society. Visiting faculty members for the course include Dr. William E. Adams, professor of surgery, University of Chicago Medical School, Chicago; Dr. Robert G. Bloch, chief of the Pulmonary Division of the Montefiore Hospital, New York; and Dr. O. A. Sander, Marquette University Medical School, Milwaukee, Wisconsin.

CRIPPLED CHILDREN SERVICES

The 1951 fall clinic schedule, conducted by the Division of Social Welfare, Medical Services Unit, Crippled Children Services, is as follows:

Place	*Date*	*Building*	*Counties*
Winona	Sept. 8	Central School	Winona Wabasha Olmsted Fillmore Houston
Bemidji	Sept. 15	High School	Beltrami Clearwater Hubbard
Marshall	Sept. 22	High School	Lyon Lincoln Redwood Lac qui Parle Yellow Medicine
Virginia	Oct. 6	Technical High	St. Louis
Fergus Falls	Oct. 13	High School	Otter Tail Wilkin
Mankato	Oct. 20	Franklin School	Blue Earth Sibley Nicollet Le Sueur Watonwan Brown Martin Faribault
Crookston	Oct. 27	High School	Polk Norman Mahnomen
Willmar	Nov. 3	High School	Kandiyohi Swift Chippewa Renville Meeker McLeod
Little Falls	Nov. 10	High School	Morrison Mille Lacs Todd

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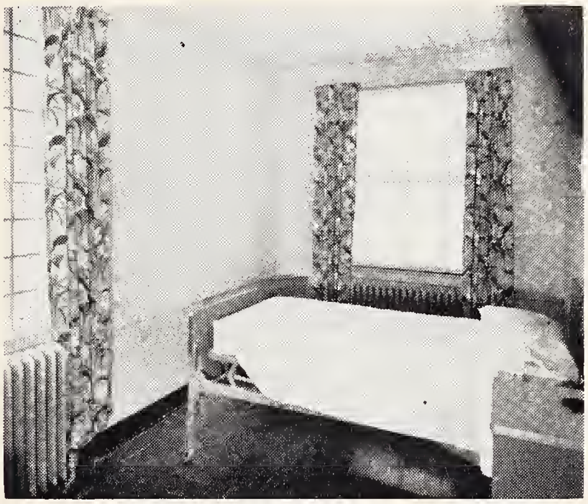

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Doctors' wives from throughout the country have long enjoyed and profited from the friendly and progressive leadership exhibited by Mrs. Harold F. Wahlquist of Minnesota. But now they are doubly proud that she has become president of the Woman's Auxiliary to the American Medical Association.

Minnesota medical women have felt that Mrs. Wahlquist has been extremely instrumental in fostering the broad objectives of the auxiliary, not only on a local and state level, but on the national level, as well. Her able activities in all phases of auxiliary work have recommended her to other women in the profession, and they know her zeal and sincerity will make her a leader of renown.

Minnesota wishes to express to her its deep appreciation of her untiring work, and pledges wholehearted support to her as she begins her year of work as president of the Woman's Auxiliary to the American Medical Association.

Annual Meeting Termed Success

Representatives of the nearly 60,000 auxiliary members were present at the 28th annual meeting of the Woman's Auxiliary to the American Medical Association, held June 11, Atlantic City, Mrs. Arthur A. Herold, Shreveport, Louisiana, president, presiding. The meeting began on Monday morning with round table discussions on public relations, legislation, *Today's Health* and program. Program chairman was Mrs. David B. Allman, Atlantic City.

Total registration was 1,578. It was stressed that one of the major considerations for the ensuing year will be the organization of new auxiliaries. During 1950, 68 new groups were formed and 875 new members-at-large were admitted, giving a total increase in membership of 3,954.

Dr. Ernest B. Howard, assistant secretary of the American Medical Association, spoke to the auxiliary's House of Delegates. Dr. Howard presented to auxiliary members, a round-up of American Medical Association news, reporting on activities and praising the auxiliary for its fine work.

Among the many important business developments, the auxiliary voted numerous changes in the constitution and by-laws, chief of which was a definition of membership in the national auxiliary. Mrs. Charles Shafer, Pennsylvania, was appointed chairman of a committee to revise the auxiliary handbook.

The auxiliary voted to contribute $10,000 to the National Fund for Medical Education and $100 to the World Medical Association.

Mrs. Harold F. Wahlquist, in her inaugural address, outlined a positive program for the auxiliary during the coming year. She stressed the importance of Health Days, citing Minnesota as a prime example of their effectiveness in developing comprehensive public relations. Mrs. Wahlquist and Minnesota auxiliary delegates were honored by the presence of the Minnesota AMA delegates: Drs. J. Arnold Bargen, Rochester; George Earl, Saint Paul; F. J. Elias, Duluth; and W. W. Will, Bertha.

Two important resolutions were adopted at the meetings:

WHEREAS, The American Medical Association has established an educational fund, and has contributed a half a million dollars to it; and

WHEREAS, We realize that there is a need for financial aid to the nation's hard-pressed medical schools; and

WHEREAS, The immediate urgency for further financial assistance has prompted a request from the American Medical Association that members of the County Medical Societies make personal contributions annually to this fund;

THEREFORE, be it resolved that the members attending this Convention give their wholehearted support to this program; and

BE IT FURTHER RESOLVED that the County Auxiliaries present this resolution to their members, with the consent of their County Advisory Committees, with the hope that it may stimulate active participation.

* * *

WHEREAS, Our American form of government has prevailed through perilous times because of vigilance and courageous activity on the part of free enterprise; and

WHEREAS, It is again challenged by the infiltration of socialism into the government as evidenced by the plan to socialize American medicine; and

WHEREAS, Although the imminent dangers to socialize American medicine have been temporarily allayed, still the socializers have not abandoned their schemes, but persistently continue their propagandizing; and

WHEREAS, In view of these activities of the socializers, continued work is indicated so that all of the vital ground which has been gained is not lost;

THEREFORE BE IT RESOLVED, That the Woman's Auxiliary to the American Medical Association continue to activate itself against the insidious efforts of the socializers by maintaining contacts with women's clubs, by distribution of informational material, by speeches before lay groups and other constructive and educational methods.

HEALTH WAYS AND HEALTH DAYS

Mrs. Waldemar G. Johanson, Health Day Chairman

When one of Minnesota's doctors finished the University of Minnesota Medical School about fifty years ago, he answered a request for a doctor near an Indian reservation in North Dakota. One of his first acquisitions was a half-breed Indian guide who also cared for his carriage and two horses and acted as an interpreter during consultation and treatment.

The doctor says today that a large measure of the success he had in that location during seventeen years of practice was due to the understanding and rare adaptability of his guide, who knew his own people and lived

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in their midst, but who could extend the professional care and influence of the doctor because of his daily association with him.

Doctors' wives are half-breed guides, also. From the day of her marriage to a doctor no woman is ever again an entirely lay person. Every hour of the day or night is geared primarily to the needs of patients. The phone is her husband's and he must be consulted about any plans involving his time. Even the children know that concerts, picnics and trips of all kinds are only tentatively planned.

However, a doctor's wife is not a professional person, although her husband's patients may look to her for far more help than she is prepared to give.

The time is past when a doctor's wife just stayed home to answer the phone and operate an emergency first aid station, although there is plenty of that. Much misinformation has resulted because doctors' families have not taken an active part in community affairs. Today the doctor's wife needs to serve on committees, assist with drives for funds, participate in Red Cross programs of instruction in home nursing, first aid and blood donations, "Summer Round-up" health examinations of pre-school children as advocated by the Parent Teacher associations, and many other health promoting efforts in her community. Auxiliary support and sound medical point of view are needed and very much desired in these fields.

Members can bring back to their busy husbands, at the same time, extremely valuable information about the programs of local schools, churches and community organizations and, in particular, about the efforts and emphases of the health-promoting agencies which affect the lives of individuals, many of whom may be his own patients.

It is possible for over-enthusiastic and ill-informed lay leaders to do great harm, in spite of genuine sincerity. Some of that may be avoided if doctors' wives will participate on boards and committees, especially feeling responsibility for projects pertaining to physical and mental health.

Dr. Austin Smith, editor of the *Journal of the American Medical Association,* summed up this two-way role of doctors' wives before a National Board meeting of the Woman's Auxiliary when he said, "The Woman's Auxiliary to the American Medical Association long has played an effective role in supporting the activities of the American Medical Association, in working closely with individual physicians and local societies and in advancing its own beliefs and policies to the advantage of the general population. Thus, when health programs are proposed for all by the medical profession and when health activities in the community must be encouraged, the members of the Woman's Auxiliary without hesitation, figuratively speaking, roll up their sleeves and start to work. . . . But, why not reverse at times the flow of information so that a two-way street is established? Why not, to be specific, take information received from nonprofessional groups back to the medical profession? Why not bring to the local medical groups hints of

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health problems that the groups may not have heard of or, in their rush of other business, may have overlooked?"

One of the problems the medical profession has faced in their participation on health programs or attempts to co-operate with lay groups on health promoting projects, has been their lack of time for proper education. Doctors' wives have two courses of action in helping their husbands. They can help lay groups plan the program for their meetings, using speakers, exhibits, pamphlets and other literature, films and demonstrations which are approved by the medical society or Minnesota State Medical Association office, or they can initiate and plan a public program under their own auspices.

The reports of various state presidents are filled with statistics of meetings, Health Days and Health Institutes. More than 12,000 women have attended health meetings sponsored by the auxiliaries of Louisiana the past year.

Every county auxiliary must discuss what type of service they can best offer their community and set to work making the finest plans, using the best available resources.

The Auxiliary is particularly concerned this year with Health Days, which are initiated by the county auxiliaries, supported by the county medical societies and co-operated in by the agencies and organizations which promote health in the community. There is helpful material to use in planning a single meeting, an entire day or an institute of several days. The Minnesota State Department of Health has trained staff members ready to give excellent advice on films, exhibits, and literature.

Assign a committee to begin plans immediately. Sample copies of Health Days in other communities are available, suggestions on how to begin and how to proceed, groups to contact and ways to gain support will be sent to anyone requesting it.

Whether she is one doctor's wife in an isolated community or a member of an organized auxiliary in a metropolitan area, the auxiliary member should assume her responsibility as an interpreter of the medical profession and the public which wants help in building positive health for itself and its children.

STATE PRESIDENT SETS FALL CONFERENCE DATE

October 12 has been set as the date for the annual Fall Conference for School of Instruction by Mrs. F. P. Moersch, president of the Woman's Auxiliary to the Minnesota State Medical Association.

Mrs. Moersch announced that the meeting will be held in the Hotel Lowry, Saint Paul, beginning at 9 a.m. with the registration and general business meeting in the Fiesta room. The luncheon will be in the Terrace at 1 p.m., where the remainder of the meeting will be held.

Program details will be forthcoming.

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In Memoriam

J. E. BROSSEAU

Dr. J. E. Brosseau died suddenly at his home in Argyle, Minnesota, on June 11, 1951, at the age of seventy-five.

Dr. Brosseau was born at Clyde, Kansas, December 5, 1875. He received a degree in Pharmacy and a B.S. degree from Brookings State College, South Dakota, before studying medicine at the University of Illinois, where he graduated in 1906.

He practiced in Chicago for two years following graduation and in 1908 moved to Frankfort, South Dakota, where the family lived until 1925. Since 1925 they have lived at Argyle, Minnesota.

Dr. Brosseau was a member of the Red River Valley Medical Society from 1929 to 1931. He was affiliated with the Modern Woodmen and Knights of Columbus lodges.

On August 29, 1910, Dr. Brosseau was married to Elizabeth Young at Aberdeen. He is survived by his widow, two daughters and two sons.

JOHN M. FALLON

Dr. John M. Fallon, director of the Fallon Clinic at Worcester, Massachusetts, died June 20, 1951, at the age of fifty. Dr. Fallon was a Fellow at the Mayo Clinic in 1929 and had recently been elected president of the Mayo Foundation Alumni Association.

ABEL RUDOLPH ELLINGSON

Dr. A. R. Ellingson, of Detroit Lakes, died following a cerebral hemorrhage May 21, 1951, at St. Barnabas Hospital, Minneapolis, at the age of fifty-four.

He was born at Northwood, Iowa, November 23, 1896. He received a B.A. degree from Luther College at Decorah, Iowa, before obtaining B.S. and M.D. degrees from the University of Minnesota in 1925. In later years he took graduate work at Tulane University, New Orleans.

Dr. Ellingson was associated with Dr. W. W. Will at Bertha following his graduation from medical school. In 1926, he went to Detroit Lakes and was associated with the late Dr. O. O. Larsen and Dr. Thorvald Vaaler, and in 1948 with Dr. William D. Dodds. He had served as Becker County coroner for the past twelve years.

On June 11, 1927, Dr. Ellingson married Lila Schaer of Minneapolis. She and three sons, William, Raymond and Thomas, survive him.

Dr. Ellingson was prominent in civic and medical affairs at Detroit Lakes. He served as president of the Civic and Commerce Association in 1938 and 1939. He was a past president of the Kiwanis Club and the Clay-Becker Medical Society, a member of the Minnesota State Medical Association and the American Medical Association. He was also a Fellow in the American College of Surgeons. He served several terms as a member of the city school board and was active in the Country Club. He was a member of the First Lutheran Church.

JOHN THOMAS LAUGHLIN

Dr. John T. Laughlin of Grey Eagle, Minnesota, died suddenly June 11, 1951, from a coronary occlusion. He was sixty-eight years old.

Dr. Laughlin was born in Custer, Wisconsin, September 26, 1882. He graduated from Marquette Medical School May 8, 1908, and had practiced at Grey Eagle for over thirty-seven years.

He was a member of the Upper Mississippi Medical Society, the Minnesota State Medical Association and the American Medical Association. He was also a member of the staff of St. Gabriel's Hospital at Little Falls and of St. Michael's Hospital at Sauk Centre, Minnesota.

Dr. Laughlin is survived by his wife and two daughters, Mrs. Phillip Prince of Wheaton, Illinois, and Mrs. Blakeslee Colby of Westborough, Massachusetts.

LESTER MACLEAN

Dr. Lester MacLean, a resident of Chicago Heights, Illinois, and a former resident of Saint Paul, Minnesota, drowned in Farm Island Lake, near Aitken, Minnesota, on July 6, 1951.

Dr. MacLean was thirty-three years of age and a graduate of the University of Minnesota Medical School. He was a combat surgeon during World War II.

Dr. MacLean was the son of Dr. Malcolm Shaw MacLean, founder and former dean of the general college at the University of Minnesota. The elder MacLean left the University in 1940 to become president of Hampton Institute at Hampton, Virginia. He now is on the faculty of the University of California at Los Angeles.

Dr. MacLean is survived by his widow and two-year-old daughter.

HENRY S. NELSON

Dr. Henry S. Nelson, of Minneapolis, died June 8, 1951, at the age of eighty-six.

Dr. Nelson was a graduate of the University of Minnesota Medical School in 1893. He practiced in Minneapolis for over fifty years until his retirement about fifteen years ago.

He was a member of the Hennepin County Medical Society, the Minnesota State Medical Association and the American Medical Association. He was also a member of the Minneapolis Masonic Lodge 19, Scottish Rite, and Zuhrah Temple of the Shrine.

Dr. Nelson is survived by his widow, Catherine.

DONALD W. POLLARD

Dr. Donald W. Pollard, superintendent of the Minneapolis General Hospital since 1941, died at the hospital June 25, 1951, following a heart attack. He was forty-nine years old.

ANYTOWN, U. S. A.

The next time you are traveling, make it a point to notice the character and development of the communities you pass through. As villages and cities grow their facilities and services are expanded. Bigger schools, more hard-surfaced streets, waterworks, sewage treatment, sidewalks and curbing, street lights and recreational facilities are some of the capital improvements communities require as they advance. Many of the relatively small communities now have waterworks systems, usually the easiest municipal service to recognize because fire hydrants and the water tower are very apparent.

Municipalities logically pay for most such improvements by the instalment plan so that those citizens who benefit from the improvement are the ones who pay for it. If a village were to set aside money from tax collections each year for twenty years until sufficient funds were accumulated to construct a waterworks system, it is quite likely that many of the taxpayers who provided part of the money would not be located there when the system was eventually constructed. Conversely, new residents could benefit from a new system without contributing to the cost.

The financing of such capital improvements is usually provided for through the issuance of municipal bonds, payable at a given rate of interest over a period of years. In this manner the debt can be liquidated partially each year as tax collections and other revenues are received. As security for the payment of the bonds the village might offer its power to levy a tax against all of the taxable property within the village, to pledge the proceeds of special assessment taxes levied against certain benefited property, to pledge the net revenues of revenue-producing operations or any combination of these.

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Dr. Pollard received his medical degree from the University of Minnesota Medical School in 1927 and virtually grew up in the Minneapolis General Hospital. He served a clerkship there in 1925 and his internship in 1926 and was receiving physician there for two years following graduation from the University.

After a short time in private practice, Dr. Pollard returned to the hospital staff as assistant city physician. In 1931 he was named acting city physician and in 1939 he became acting superintendent of the hospital.

In 1941 he was named superintendent.

During World War II, Dr. Pollard was on a two-year leave of absence from his hospital post, serving as major in the army medical corps.

He returned to General hospital in 1945 after serving at Kennedy General hospital, Memphis, Tenn., and at other army installations in the south.

A native of Minneapolis, Dr. Pollard was a graduate of Central high school. He was a member of the Masonic lodge, Scottish Rite, and Zuhrah temple of the Shrine.

Dr. Pollard also was a member of the American Medical Association, the Minnesota State Medical Association and Hennepin County Medical Society.

Survivors are his wife, Marian J.; two sons, John and Ralph; a daughter, Mary; his father, William, and a brother, Seth C., all of Minneapolis, and a sister, Mrs. Charles Farr, Duluth, Minn.

Of General Interest

The attention of physicians is called by the U. S. Food and Drug Administration to a worthless and extremely dangerous remedy advertised as a substitute for insulin for diabetics. Newspapers and magazines in about a dozen cities have carried ads for the preparation, called Cacalla Composita Mexican Indian Root, and offered by the Mexican Indian Root Company, Mexico City, under the name of Dr. Miguel C. Martinez, general manager. It is priced at $15 and $25, cash in advance and transmitted by mail. The AMA's Bureau of Investigation first called the situation to the attention of the Federal Drug Administration. Knowledge of the possession of any of this fake remedy by patients should be submitted to the Federal Drug Administration.

* * *

Dr. Irving C. Bernstein has opened an office at 312 LaSalle Building, Minneapolis, for the practice of medicine. Dr. Bernstein, who recently completed a residency in psychiatry at the University of Colorado Medical Center, Denver, is limiting his practice to psychiatry.

* * *

Dr. Elmer C. Paulson joined the Worthington Clinic on July 1 as radiologist. Dr. Paulson practiced in Dalton and Elbow Lake and was in the Army Air Force before completing a three-year fellowship in radiology at the University of Minnesota. Dr. Paulson grew up in Fergus Falls. His father was a great friend of Dr. B. O. Mork, Sr., the two having lived at Hills before the latter moved to Worthington.

* * *

The St. Louis Park Medical Center, 4959 Excelsior Boulevard, which began operations on July 1, includes the following on its medical staff: Dr. Arnold S. Anderson, Dr. Alex Barno, Dr. Donald W. Freeman, Dr. Sewell S. Gordon, Dr. Robert A. Green, Dr. Wyman E. Jacobson, Dr. John W. LaBree and Dr. Richard J. Webber.

* * *

Dr. Henry L. Ulrich and **Dr. Charles N. Spratt,** Minneapolis, members of the Class of 1901 at Johns Hopkins, recently attended their fiftieth reunion. Eight of the fourteen remaining members of the class of fifty returned for the reunion.

* * *

The Bemidji Clinic acquired a new staff member on July 3. He is **Dr. Leslie C. Lundsten,** who is specializing in the practice of internal medicine. A graduate of the University of Illinois School of Medicine, Dr. Lundsten has taken postgraduate training in electrocardiography at the University of Illinois and has served for almost two years in the Army Air Force. He recently completed three years as a resident in internal medicine at Hines Veterans Administration Hospital, Hines, Illinois.

Dr. Samuel S. Beirstein and **Dr. Michael J. Feeney** have opened offices at 507 Physicians and Surgeons Building, Minneapolis, for the practice of urology.

* * *

Elected as president of the Minnesota Heart Association at the annual meeting in Saint Paul on July 10 was **Dr. F. J. Hirschboeck,** Duluth. Named to the board of directors were **Dr. Earl E. Barrett,** Duluth, and **Dr. W. S. Neff,** Virginia.

* * *

Dr. Ralph L. Estrem has returned to practice with the Estrem Clinic in Fergus Falls after a leave of absence of two and one-half years for special study. During his absence from the clinic he studied x-ray diagnosis at Northwestern Hospital, Minneapolis, and internal medicine at Ancker Hospital, Saint Paul.

* * *

It was announced on July 2 that two consultants had been added to the staff of the Mayo Clinic, Rochester. Appointed were **Dr. Maurice J. Barry, Jr.,** formerly of Indianapolis, Indiana, in the section on neurology and psychiatry, and **Dr. Einer W. Johnson, Jr.,** formerly of Colorado Springs, Colorado, in the orthopedic section.

Dr. Barry, a graduate of the University of Indiana Medical School, interned at Indianapolis General Hospital and was a resident in psychiatry at Pennsylvania Hospital in Philadelphia. He served two years in the army and joined the Mayo Clinic in July, 1950.

Dr. Johnson, after his graduation from the University of Minnesota Medical School, interned at Milwaukee County Hospital and then served in the navy. He entered the Mayo Foundation in 1946 and received his M.S. degree in orthopedic surgery in June, 1950, after which he began practice in Colorado Springs.

* * *

Dr. Henry E. Michelson was elected a corresponding member of the British Association of Dermatology on June 25 at Oxford, England.

* * *

All physicians of Minnesota are invited to submit to MINNESOTA MEDICINE items "of general interest" concerning themselves or their colleagues. Only the facts are needed, since items can be rewritten for consistency of style. To avoid important omissions, it is suggested that when submitting items the standard reportorial questions be answered: who, what, where, when, and in some cases, how and why? Items can be sent to MINNESOTA MEDICINE, 2642 University Avenue, Saint Paul 4, Minnesota.

* * *

Dr. Richard W. Anderson, a diplomate of the American Board of Psychiatry and Neurology, has become associated with **Dr. Gordon R. Kamman** in the practice of psychiatry and neurology at 1044 Lowry Medical Arts Building, Saint Paul.

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Dr. John O'Leary, who recently completed his internship at St. Mary's Hospital, Minneapolis, joined the staff of the Seifert Clinic at New Ulm on July 1. Dr. O'Leary is a graduate of the University of Minnesota Medical School. While in school, he won a $500 Borden Foundation award for his research work in brucellosis with **Dr. Wesley W. Spink.**

* * *

Dr. H. T. Petraborg has moved into newly remodeled offices in the Sergent Building in Aitkin. The offices include a reception room, business office, x-ray room, minor surgery room, laboratory, examining room and private office.

* * *

To improve instruction in cancer diagnosis and treatment by future physicians, dentists and osteopaths, **Public Health Service grants** of $885,067 were recently made by the Cancer Institute of the National Institute of Health. Thirty-seven medical schools and sixteen dental schools were the recipients of these grants, which were approved by Surgeon General Leonard A. Scheele of the Public Health Service, following recommendations made by the National Advisory Cancer Council. Except for a new grant to establish a cancer training program at the University of Puerto Rico Medical School, all fifty-three grants were made to continue, expand or improve existing programs.

Represented in the new grants for cancer training were professional schools in twenty-eight states, the District of Columbia and Puerto Rico. Since 1947, when such grants to medical and dental schools were first made, seventy-eight of the nation's seventy-nine medical schools and thirty-nine of the forty-two dental schools have been aided.

Cancer teaching grants, which are renewable annually, enable professional schools to employ faculty members to co-ordinate and strengthen their cancer instruction programs in the classrooms and clinics as well as to procure required cancer training materials. Medical schools are limited to $25,000 annually for four-year schools and $5,000 for two-year schools; dental schools to $5,000 annually.

* * *

Dr. David D. Allison has begun medical practice in the former offices of **Dr. K. J. Kelley** in Litchfield. A graduate of the University of Minnesota Medical School, Dr. Allison served his internship at Ancker Hospital, Saint Paul. Dr. Kelley moved from Litchfield on July 1 to study pediatrics at the University of Utah in Salt Lake City.

* * *

Dr. Thomas Lowry, chief of internal medicine at Minneapolis General Hospital, was named temporary medical director of the hospital on July 6. The board of public welfare made the appointment pending the selection of a successor to the late Dr. D. W. Pollard, hospital superintendent, who died on June 27.

The Minnesota Selective Service Board announced early in July that Minnesota's July quota in the draft of medical men would be thirteen physicians. The national Selective Service headquarters stated that a total of 717 doctors in the nation would be called into active service in July.

* * *

Bids on construction of the redesigned **Mayo Memorial Medical Center** at the University of Minnesota will be opened on August 29, a University spokesman said on July 12. Originally planned to be a twenty-two-story building, the project had to be scaled down to twelve stories when the 1951 state legislature did not appropriate additional needed funds. Work on the foundation of the center has already been completed.

* * *

Early in July, **Dr. William H. Thomas** of Howard Lake purchased the office building and lot of the late Dr. L. Harriman. Following the purchase, Dr. Thomas had the entire interior of the building remodeled and redecorated so as to increase the number of rooms. Assisting Dr. Thomas in conducting the practice is **Dr. Gerard R. Hassett,** formerly of Mankato, who began his new duties during the second week of July.

* * *

Dr. C. L. Sherman, Luverne, was elected president of the Southwestern Minnesota Sanatorium Commission at a meeting at Worthington on July 5. It was the thirty-seventh consecutive time that he had been named to the post. Dr. Sherman, the only remaining original commission member, first became president in 1915, when the institution first opened.

* * *

Dr. George H. Mesker, Olivia, celebrated his seventy-eighth birthday on July 10. Dr. Mesker began practice at Olivia in 1896, then left in 1944 to accept a position with the army at a Japanese language school in Savage. About a year ago he returned to live at Olivia.

* * *

The community of Hayfield paid tribute to **Dr. H. R. Baker** on July 8 for his thirty-nine years of service in the community. At special ceremonies held in the school auditorium and sponsored by the Hayfield Chamber of Commerce, residents praised Dr. Baker for his years of work and presented him with a wrist watch as a token of the community's affection and regard for him. The principal speaker at the gathering was **Dr. Roger Kennedy** of Rochester.

Dr. Baker, a graduate of Hamline University in 1907, practiced at Eveleth and Waltham before he moved to Hayfield in 1912. He has been a delegate to the House of Delegates of the Minnesota State Medical Association for five years and has held numerous offices in his local county society.

* * *

Dr. Dean D. Nyall became affiliated with the Slayton Clinic at Slayton on July 15. A graduate of the University of Nebraska Medical School, he served his internship at the University Hospital in Omaha.

* * *

After several months of active duty with the U. S. Army in Korea, **Dr. John R. Utne** returned to his home in Northfield on June 25 to spend a leave with his family. He expected to be stationed at Seattle, Washington, at the conclusion of his leave.

* * *

The Northwestern Clinic in Crookston acquired a new physician late in June when **Dr. Howard M. Wikoff,** formerly of Bemidji, became a member of the staff. A graduate of the University of Minnesota Medical School, Dr. Wikoff interned at Minneapolis General Hospital and then served in the army for four years. He spent two and a half years overseas, working in the same hospital with **Dr. R. O. Sather,** also a member of the Northwestern Clinic. Following his army service, Dr. Wikoff took postgraduate work in internal medicine at the University of Minnesota for three and a half years. He then practiced in Bemidji for two years.

* * *

Dr. Paul C. Leck, Austin, has been named to the executive committee of the Minnesota Public Health Association. Dr. Leck is president of the Mower County Public Health Association.

* * *

Dr. George B. Eusterman, former head of a section of medicine at the Mayo Clinic, will become senior consultant in medicine at the Berry Clinic in Atlanta, Georgia, in October. Dr. Eusterman first entered the Mayo Foundation in 1908, and in 1919 he

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became head of a medical section in the clinic. He retired from the clinic staff in April, 1949.

* * *

On June 27, **Dr. F. H. Walter** of International Falls opened a new suite of offices and announced that he was no longer associated with the Falls Clinic. His new offices include eleven rooms.

* * *

Dr. Robert F. Swanson, formerly of Mondovi, Wisconsin, moved to Pequot Lakes during the first week of June and opened offices for the practice of medicine in the Pequot Lakes Clinic Building. A graduate of Northwestern University Medical School, Dr. Swanson served in the army for three years and in 1946 began practice in Mondovi.

* * *

At the annual meeting of the Hennepin County Tuberculosis Association in Minneapolis on June 25, **Dr. Asher A. White** of Minneapolis was elected president of the organization.

* * *

Dr. John D. Camp, former consulting physician in the roentgenology section of the Mayo Clinic, moved to Los Angeles on August 1 and entered the private practice of radiology. In Los Angeles he is senior radiologist at the 500-bed Hospital of the Good Samaritan.

Dr. Camp first joined the Mayo Foundation in 1922, and in 1946 he became a professor of radiology. In 1949 the highest honor of the Radiological Society of North America was bestowed upon him for his outstanding work in the field.

* * *

Dr. John H. Allen, formerly of Saint Paul, has become associated in practice with Dr. L. G. Smith in Montevideo. A graduate of the University of Minnesota Medical School, Dr. Allen served his internship at Ancker Hospital, Saint Paul.

* * *

Construction work was started during the middle of June on a new community clinic building in McIntosh. When completed, the eleven-room clinic will be in charge of **Dr. C. L. Roholt** of Waverly, assisted by **Dr. W. H. Henney,** McIntosh.

* * *

Dr. L. K. Onsgard, Houston, has been appointed chairman of the Houston County Public Health Association. He succeeds **Dr. J. W. Helland,** Spring Grove, who resigned after serving as chairman for twenty years.

* * *

Dr. and Mrs. R. K. Ghormley returned to Rochester early in June from a seven-week trip to Europe. During the trip Dr. Ghormley attended several medical meetings in various European countries.

* * *

Two physicians affiliated with the Slayton Clinic began practice in different cities during the middle of July. The two are **Dr. V. A. Doms** and **Dr. O. A. Wisness.**

Dr. Doms, who joined the Slayton Clinic in Jan-

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uary, 1949, moved to Elbow Lake on July 10 to become associated in practice with Dr. Lester R. and Dr. Lillian B. Parson, both of whom, it was said, planned to retire within the next few years.

Dr. Wisness, who moved to Slayton in November, 1948, terminated his connection with the clinic on July 15 and began practice in Comfrey. He purchased the practice there of Dr. F. C. Gibbons. Dr. Gibbons, who practiced in Comfrey for twenty years, has moved to Long Beach, California.

* * *

Dr. Earl V. Wetzel, who practiced in St. Cloud for the past four years, moved to Saint Paul on July 1 and joined the staff of Ancker Hospital. He is specializing in obstetrics and gynecology.

* * *

After four years of practice in Farmington, **Dr. Norton Rogin** left on July 1 to begin a three-to-four-year study in specialized surgery at the Minneapolis Veterans Hospital.

* * *

Principal speaker at a meeting of the Rochester Rotary Club on June 21 was **Dr. E. H. Rynearson,** Rochester, who presented impressions and observations of his recent trip to Europe.

* * *

Dr. A. Eugene Muller has moved into new offices at 147 Seventh Avenue N. E., North Saint Paul. The building, construction of which was completed recently, is of modern design and houses numerous consultation, examining and treatment rooms. Newly associated in practice with Dr. Muller in the offices is **Dr. Richard J. Sells,** a graduate of the University of Minnesota Medical School.

* * *

Detroit Lakes recently acquired two new physicians when **Dr. Mark E. Odland** and **Dr. Ernest S. Lorentzen** joined the firm of **Dr. L. H. Rutledge** and **Dr. C. W. Moberg.**

Dr. Odland, a graduate of the University of Minnesota Medical School, served his internship at Minneapolis General Hospital. Dr. Lorentzen, a graduate of Northwestern University Medical School, also interned at Minneapolis General Hospital.

Residents of Kimball and the surrounding area gathered in the school auditorium on June 17 to honor **Dr. George E. Sherwood,** who has practiced medicine in Kimball for more than fifty years.

At the ceremonies, tribute was paid to Dr. Sherwood by numerous speakers, and he was presented with a commemorative plaque. Among the speakers were Dr. J. P. McDowell and Dr. R. N. Jones, both of St. Cloud, and Dr. A. M. Ridgway, Annandale.

Dr. Sherwood, a graduate of the University of Minnesota Medical School, began practice at Dassel in 1894. He practiced there until 1900, when he moved to Kimball.

* * *

Dr. C. J. Stadem, Dr. A. L. Walonick and Dr. J. G. Adelmann, a dentist, all formerly of Minneapolis, are now in practice in Twin Valley in a new office building known as the Twin Valley Medical Center. The building was erected last winter by the Twin Valley Hospital-Clinic Building Association.

* * *

Dr. J. T. Boswell closed his office in Wanamingo on June 15 and reported at Norfolk, Virginia, on July 1 for active duty in the navy. He had practiced at Wanamingo for about one year.

* * *

Dr. and Mrs. R. E. Fricke, Rochester, spent June and July on a trip through England, France, Denmark, Sweden, Norway, Scotland, Switzerland and Holland.

* * *

Formerly of West St. Paul, **Dr. J. A. Malerich** is now living at Globe, Arizona, where he is taking a year of rest because of ill health. At the end of a year he expects to return to his practice at West Saint Paul.

* * *

Dr. George N. Rysgaard joined **Dr. S. T. Kucera** in the practice of medicine in Northfield on July 1. A graduate of the University of Minnesota Medical School, Dr. Rysgaard served his internship at Minneapolis General Hospital.

* * *

One of Duluth's oldest practicing physicians, **Dr. William R. Bagley,** has published a booklet entitled

"Life and Its Obligations." In it he states that millions of people are gradually committing suicide through the use of liquor, cigarettes and narcotics. He points out that although nature is filled with animals, birds and plants struggling to live, man seems to be trying to destroy himself. After thoroughly condemning smoking, drinking and drug-taking, Dr. Bagley points to the laws of nature and gives as his thesis: "We must live. That is the testimony of all life we know."

* * *

Dr. M. W. Comfort, Rochester, was installed as president of the Mayo Foundation chapter of Sigma Xi at a meeting of the organization on June 21.

* * *

Dr. John E. Verby, Jr., Litchfield, was one of the thirteen Minnesota physicians called to active duty in July in the first draft of medical men since World War II. Dr. Verby began practice in Litchfield in November, 1949. He expects to return to his practice there when his term of service is ended.

* * *

Dr. Peter J. Schultz has moved his offices from 6 East Diamond Lake Road to 624 West Fifty-fourth Street, Minneapolis.

* * *

On June 20, **Dr. Nels M. Strandjord,** Virginia, announced that he plans to move to Africa in the fall to take a position at a 140-bed hospital in Tanganyika. He will be physician and teacher in the hospital, which is operated by the German Lutheran Church in a village of about 10,000 persons in northern Tanganyika. Dr. Strandjord has been associated with the Lenont-Peterson Clinic in Virginia for the past three years.

* * *

The Hennepin County Tuberculosis Association launched a campaign on June 25 to get Minneapolis hospitals to take a chest x-ray film of every newly admitted patient. The association announced plans to spend $4,700 in the next year to get the plan started. The group pointed out that there would be many benefits in the plan through the early detection of new cases of tuberculosis, lung cancer and other diseases. The cost to each patient would probably be about $1.50 or $2 for a screening-size x-ray.

* * *

Dr. and Mrs. Howard K. Gray returned to Rochester on June 14 from a trip through Europe. During the trip, which began on March 14, Mr. Gray gave eighteen lectures before medical and surgical groups overseas.

HOSPITAL NEWS

Six Minnesota hospital projects have been put on the construction schedule by the Minnesota Health Department and are therefore well on the way to obtaining federal funds to partly finance building costs. The six hospitals are at Crookston, Madison, Hastings, St. Cloud, Shakopee and Glenwood.

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The new east wing addition to the **Charles T. Miller Hospital** in Saint Paul is well under way. When completed, it will add 135 more beds on the third to sixth floors, operating rooms and post-anesthesia rooms on the second floor, diagnostic and therapeutic x-ray department and physiotherapy on the first floor, clinical and pathological laboratories on the ground floor, and sterilizing, central supply and a pharmacy in the basement.

The expansion was made possible by the public campaign for funds in 1948, when approximately $1,800,000 of the estimated cost of $2,000,000 was subscribed. The addition will help somewhat to relieve the shortage of hospital beds which has been in evidence in Saint Paul as well as throughout the country during the past decade and which is the result of a number of factors not likely to undergo a change in the near future.

* * *

The daily cost of caring for patients at the **Mineral Springs Sanatorium** has more than doubled in the last ten years, it was revealed in a report made by Dr. Ezra V. Bridge, medical director and superintendent, late in June. Total cost per patient per day during 1950 was about $5.69, compared to a cost of $2.13 in 1941.

* * *

Plans and specifications for a surgical research building at **Ancker Hospital**, Saint Paul, were to be drawn immediately and bids taken on the construction, it was announced on June 20. The planned structure is expected to cost about $75,000, and it will be financed by $30,000 in city and county funds and through additional funds from private donations.

* * *

More than 2,000 persons attended the dedication of the new $276,000 **Pelican Valley Hospital** at Pelican Rapids on June 28. Dr. M. M. Hargraves, Rochester, delivered the dedicatory address for the twenty-five-bed institution.

* * *

First steps towards the construction of a $1,707,000 addition to **St. John's Hospital** in Saint Paul have been the tearing down of the former nurses' home on the grounds and the construction of two temporary structures for offices of the contractors.

Official ceremonies were held on May 6, attended by about 300 friends of the hospital. Speakers were Harry C. Manke, president of the board of directors; Thor Becken, chairman of the building committee; Herbert P. Buetow, chairman of the fund-raising committee, and Dr. Helen Knudsen of the State Board of Health. Guests of honor included Dr. F. J. Plondke, founder of the hospital and medical director; Miss Magdalena M. Rau, superintendent of the hospital since its inception, and Carl Ave-Lallemant, assistant superintendent.

Mr. Buetow spoke of the need for more hospital beds in St. John's Hospital and in Saint Paul and of the effect of increased cost of hospital construction, which required an appeal for additional help from the churches. They responded in the amount of $100,000, and another $100,000 from the Louis W. and Maud Hill Family Foundation cleared the way for the attainment of the original plans. Federal aid through the Hill-Burton bill assisted to the extent of $330,000.

The entire fourth or top floor of the addition will be devoted to a chronic disease unit to be dedicated as a memorial to Louis W. and Maud Hill.

* * *

The **Mount Sinai Hospital** in Minneapolis opened its maternity section on June 19. It was the third department in the new hospital to be opened for service. Chief of the obstetrics medical staff is Dr. Milton Abramson.

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BLUE CROSS-BLUE SHIELD NEWS

During the recent annual meeting of Blue Cross-Blue Shield Plans, the Medical Directors sessions were largely devoted to a consideration of eliminating unnecessary hospitalization for diagnostic services only, shortening hospital stay when medically proper, and reducing to a minimum all ancillary services. Complete understanding and co-operation of doctors throughout the country, it was concluded, should provide the solution of these basic Blue Cross problems.

Both Blue Cross and Blue Shield are intended primarily to keep costs of hospital and medical care within the financial reach of all. Both Plans are designed to level off the high cost of medical and hospital care for unforeseen, catastrophic illness. Full coverage for all hospital and medical care is avoided in order to keep the premiums low. In this respect, there is a close parallelism between Blue Cross-Blue Shield contracts and the $25 and $50 deductible automobile insurance. Car owners willingly pay the minor costs of car accidents in order to keep the premiums low and yet have coverage for the hundred dollar items. Similarly with Blue Cross and Blue Shield, people can without serious financial difficulty pay for diagnostic studies in the home or office, and for office and house calls for minor illnesses. But, where subscribers or doctors attempt to stretch the hospital or medical contract into full coverage, either financial disaster lies ahead for the plan or it must raise its premiums to unpayable or unsalable levels.

So widespread has been the abuse of Blue Cross contracts for diagnostic studies that various state Blue Cross plans have printed placards and distributed them to doctors and hospitals, stating such services are not covered. They have secured appointment of staff, medical society and regional medical advisory committees to help limit the abuse. They have published news letters to doctors and have provided releases for medical journals to help in the campaign. Wherever physicians have talked down such cases, hospital diagnostic studies at Blue Cross expense have dwindled to a minimum.

Another important feature of the same problem is shortening the hospital stay as much and as often as possible. Originally, Blue Cross was solely for short-stay emergency cases. As time passed, the number of hospital days paid was extended to 70 in order to protect subscribers against the high cost of prolonged illnesses. This has been possible financially only because there has been a progressively shorter hospital stay in surgical and obstetrical cases. In other words, the early ambulation program of surgical and obstetrical cases has provided the money for the medical, psychiatric and other cases requiring longer hospital sojourn. But, early ambulation also permits a more rapid hospital turnover in short-stay cases of all types. Here again, appeals have been made to members of the medical profession to shorten hospitalization as much as the patient's safety and welfare will permit. When it is realized that adding just one day of unnecessary hospitalization to every Blue Cross admittance in Minnesota would cost the plan one million dollars a year, the need for physician co-operation in this regard is apparent.

Perhaps the greatest and most innocent Blue Cross abuse is that involved in ancillary costs. Blue Cross is a service and not an indemnity contract. As such, it attempts to cover as much of the service charge as possible. Ancillary items are x-rays, laboratory tests, drugs, dressings, and antibiotics. With the colossal advances made in biochemical medicine and therapeutics, use of the laboratory and new departures in treatment have raised ancillary costs to a point often exceeding per diem hospital charges. Some Blue Cross plans have issued stickers to be placed on hospital order sheets reminding the doctors to discontinue antibiotics and other costly therapeutic agents as soon as advisable. Doctors in some states have agreed to have such medications stopped unless they rewrite orders for them every three days. And always it is readily evident that wherever the greatest interest and co-operation of the physicians are found, the results are the most gratifying.

This article has been written, not only to keep you informed of trends in hospital and medical care throughout the country, but as an earnest appeal for help in solving some of the problems encountered in the field of prepaid hospital and medical care. It is almost universally recognized that Blue Cross and Blue Shield are the strongest and undoubtedly the last bulwark against Compulsory Health Insurance. Their strength and growth lies in your hands. Your support and promotion of them give you the greatest assurance of the preservation of the American System of Medicine.

H. L. Wahlstrand Joins Blue Cross-Blue Shield Staff

Harry L. Wahlstrand of Willmar, Minnesota, has been appointed Educational Director of the Minnesota Blue Cross and Blue Shield Plans, according to announcement by Arthur M. Calvin, Executive Director. Mr. Wahlstrand comes with a background of many years of educational work in the public schools of Minnesota. He is a graduate of the Gustavus Adolphus College, St. Peter, Minnesota, and has done postgraduate work in Birmingham, England. He is a past State Director from Minnesota for the National Educational Association and has recently been awarded a citation for his twenty-five years as a member of the Kiwanis Club International.

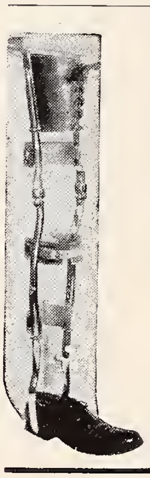
The addition of Mr. Wahlstrand to the staff of the Minnesota Hospital Service Association and Minnesota Medical Service, Inc., will be most valuable, because of his background as an educator and his sincere interest in the health and welfare of the people of Minnesota. Mr. Wahlstrand served eight years in the House of Representatives of the Minnesota Legislature. There he served as Chairman of the Committee on Education. For the past twelve years Mr. Wahlstrand has held the chairmanship of the Senate Public Health Committee.

Mr. Wahlstrand is well known throughout the State of Minnesota as a speaker at luncheon clubs, schools, colleges and other public meetings on such subjects as the Constitution of the United States, the United States Government, state and national resources, and educational matters. Mr. Wahlstrand will be available in this capacity in addition to his new duties in the field of voluntary, non-profit, prepayment, hospital and medical care plans. Mr. Wahlstrand joined the staff of Blue Cross and Blue Shield on July 1, 1951.

MINNEAPOLIS SURGICAL SOCIETY

(Continued from Page 803)

is still in reserve if necessary, at which time the situation around the duodenum probably will be different. I encountered such an instance about three weeks ago in a twenty-eight-year-old man with high acids. One wonders how complete are vagotomies generally if Dragstedt finds that 11 per cent of his are incomplete and 21 per cent of 400 cases collected from the literature were found to be incomplete by the insulin hypoglycemia test. This is of course a definite disadvantage of the operation.



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BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical Libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

REVIEW OF PHYSIOLOGICAL CHEMISTRY. Third Edition. Harold A. Harper, Ph.D. Professor of Biology (Biochemistry) University of San Francisco; Lecturer in Surgery, University of California School of Medicine, San Francisco; Biochemist Consultant to Metabolic Research Facility, U. S. Naval Hospital, Oakland; Director Biochemistry Laboratory, St. Mary's Hospital, San Francisco. 260 pages. Illus. Price $3.50, flexible cardboard, plastic comb binding. Palo Alto, California: University Medical Publishers, 1951.

LOW SODIUM DIET—A Manual for the Patient. Thurman B. Rrice, A.M., M.D. Professor of Public Health, Indiana University School of Medicine, Indianapolis, Indiana. 103 pages. Price $2.75, cloth. Philadelphia: Lea & Febiger, 1951.

METABOLIC METHODS. Clinical Procedures in the Study of Metabolic Functions. C. Frank Consolazio, Chief of Biochemistry, U. S. Army Medical Nutrition Laboratory, Chicago; Robert E. Johnson, M.D., D. Phil. (Oxford), Professor and Head of the Department of Physiology, University of Illinois, Urbana, Illinois, and Evelyn Marek, M.A., Biochemist, U. S. Army Medical Nutrition Laboratory, Chicago. 471 pages. Illus. Price $6.75, cloth. St. Louis: C. V. Mosby Co., 1951.

IMMUNOLOGY: By Noble Pierce Sherwood, Ph.D., M.D., F.A.C.P., Professor of Bacteriology, University of Kansas, and Pathologist to the Lawrence Memorial Hospital, Lawrence, Kansas. Third edition, 731 pages. Illustrated. VII plates and 2 figures in color; 14 tables and 21 figures. References. Price: $8.00. St. Louis: The C. V. Mosby Company, 1951.

This book is written for medical students, college students majoring in bacteriology and chemistry, and for physicians and others who are interested in the subject of immunology.

In this laborious and arduous study, the author has presented and given to us an admirably written book. He has been very successful in correlating the teachings of some other applied and related sciences insofar as they relate to the underlying principles involved in infection, resistance, and diagnostic laboratory tests.

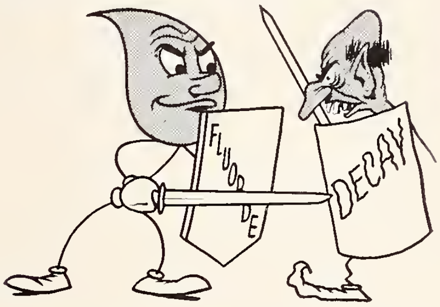
While the medical world changes rapidly, Sherwood's third edition has brought the subject matter up to date.

Katherine A. Nye, M.D.

SEX WITHOUT FEAR. S. A. Lewin, M.D., and John Gilmore, Ph.D. 121 pages. Illus. Price $3.00. New York: Lear Publishers, 1950.

"Sex Without Fear" is dedicated to "the married and those about to be." This book is written in a simple, forthright manner which does not bog down the layman with unnecessary detail. Although many medical terms are used, they are well defined and a glossary is provided for easy reference. Liberal use is made of drawings

Important News!



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Esophageal Surgery, one week, starting October 15.
Thoracic Surgery, one week, starting October 8.
Gallbladder Surgery, ten hours, starting October 22.
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to illustrate anatomical detail. In addition to the usual chapters on the reproductive system, intercourse, contraception, et cetera, the book also covers briefly the subjects of abortion and venereal diseases. The ignorance of the public regarding these subjects has caused many tragedies, and in my opinion these subjects are all too frequently excluded from such discussions.

R.M.A.

CHRONIC ULCERATIVE COLITIS (Thrombo-Ulcerative Colitis). J. Arnold Bargen, M.D., Division of Medicine, Mayo Clinic, Rochester, Minnesota. 62 pages. Illus. (Publication No. 101, American Lecture Series.) Cost $2.00. Springfield, Ill.: Charles C Thomas, 1951.

The outstanding feature of this little book is that it has been so well written as to be pleasant reading. The discussion is confined to chronic thrombo-ulcerative colitis. Idiopathic and segmental or regional colitis are not included.

Etiology is not discussed at great length. Quite probably the brevity of treatment given to some of the controversial aspects of the treatise, contributes to the maintenance of reader interest. Differential diagnosis is not covered. The possible relation of adrenocortical hormones and the use of ACTH and cortisone are merely touched upon.

Dr. Bargen mentions that hypertrophic osteoarthritis is seen frequently in cases of severe ulcerative colitis. The relationship of ulcerative colitis to childhood growth and development and to pregnancy are discussed.

Treatment is well covered. Control rather than cure is mentioned as being a proper therapeutic aim. Surgery is suggested only for some of the complications. Detailed directions are provided for diet, nursing care, colonic irrigations and fluid for parental administration. The creation of a skin-grafted ileostomy stump is described. The mechanics of an ileal stoma of this type simplifies stomal care for the patient.

The author suggests that whatever personality traits are common to persons with colitis, are the result rather than the cause of the disease.

D.D.B.

SKIN ALLERGIES

(Continued from page 751)

In dermatoses, caused or affected by food and ingested substances, quantity and frequency of ingestion are important. Untoward reactions to ingested materials appear within twenty-four hours, rarely after forty-eight hours. Diet rotation or alternate taking of foods are of definite value, so that the same food is not repeated in consecutive meals or days.

Summary

The clinical phenomenon of allergy is important in dermatology. Three of these manifestations are discussed briefly, as are also the implications from the allergic viewpoint.

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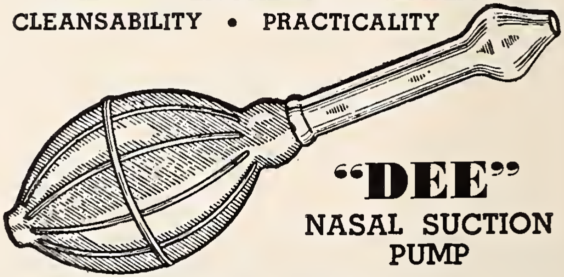

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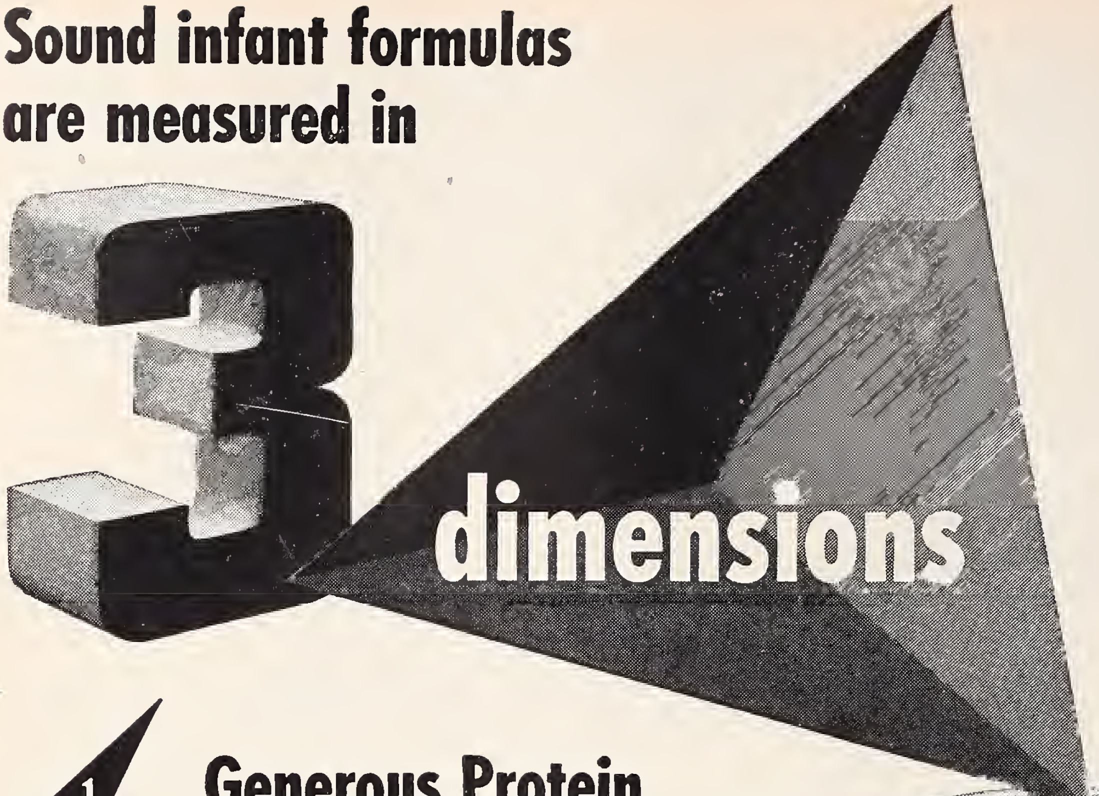
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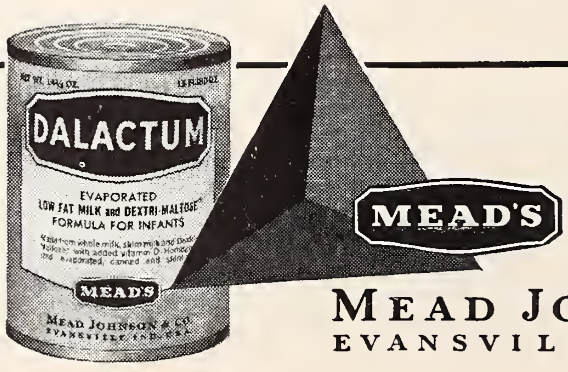
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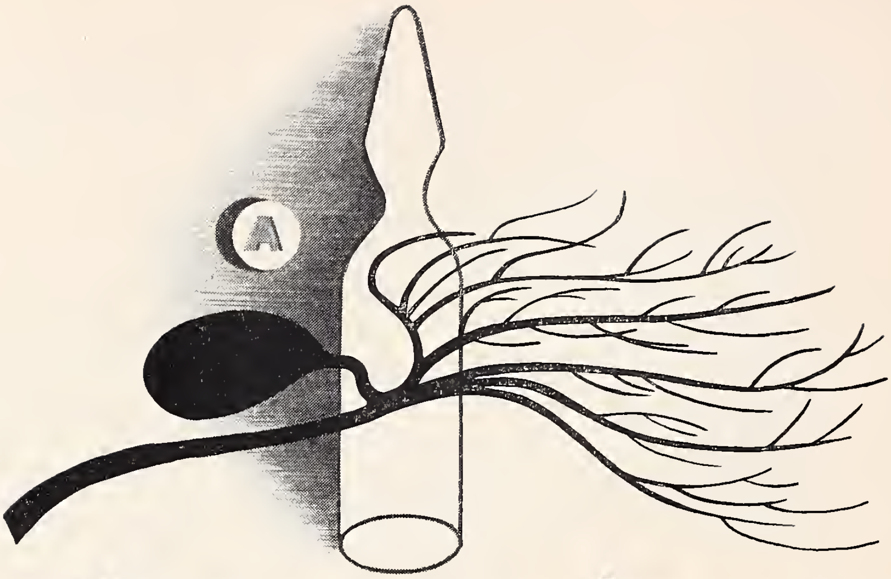

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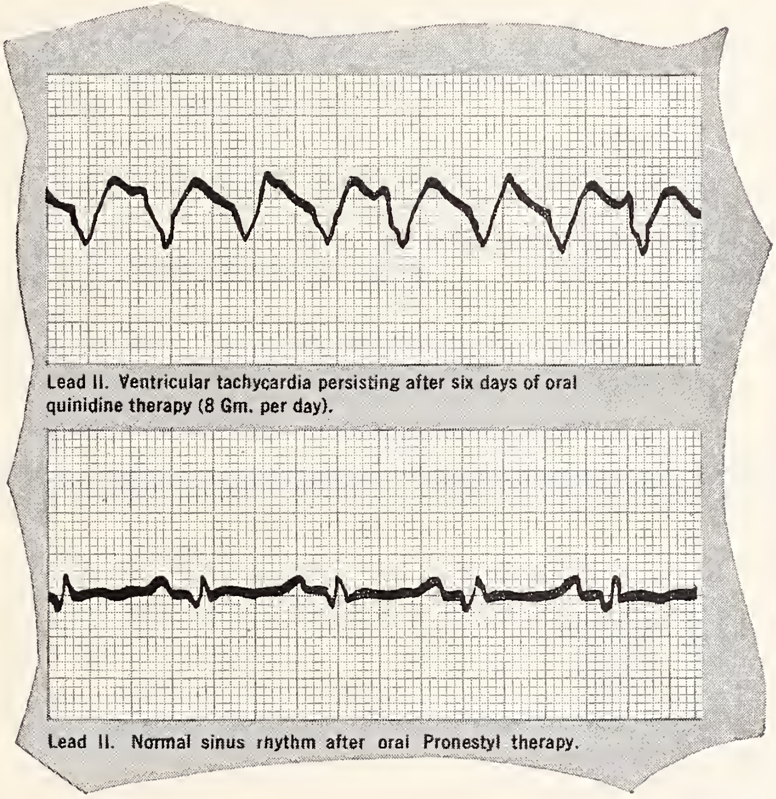

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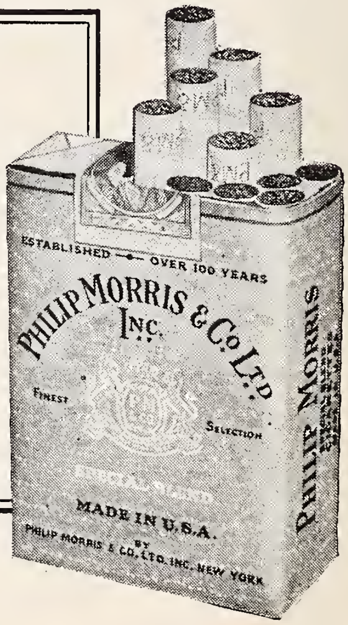
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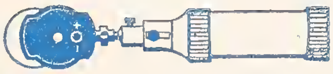

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Volume 34 **September, 1951** **Number 9**

SYMPOSIUM ON CORTISONE AND ACTH

Introduction

HOWARD F. POLLEY, M.D.
Rochester, Minnesota

IT has been said that we have been in a new era of medicine since the effects of cortisone and adrenocorticotropic hormone (ACTH) on rheumatoid arthritis were first reported slightly more than two years ago.[1] If this be so, the new era is certainly a most complicated one and much remains to be learned in it. The broad but nonetheless limited scope of the effects of cortisone and ACTH will become apparent in the course of this program.

The structure of ACTH, possibly a protein substance, is not yet established. The basic chemical structure of cortisone—the grouping of the rings A, B, C and D—is known as the phenanthrene nucleus (Fig. 1). This nucleus also is the basis of certain other steroidal substances and hormones. One of the most important keypoints in this structure is the carbon atom at position 11 (C-11) to which, in the case of cortisone, a double-bond oxygen group is attached. Hence, the term "C-11 oxysteroids" is sometimes used to describe cortisone and closely related steroids with an oxygen atom at this position in the structure. The only alteration at C-11 now known which seemingly does not interfere with antirheumatic activity of the substance is a minor switch from a double-bond oxygen group to an OH or hydroxyl group. With an OH group at C-11, this structure becomes compound F or hydrocortisone. You may later hear more about this hormone, which is still under investigation.

Any other alteration at C-11 or at C-17, where the characteristic side chain is attached, or at C-3 or C-4-5 apparently renders enough structural variation so that the resultant substance is antirheumatically, if not physiologically, inactive.[2] At present there is no clinically available steroid "substitute" for cortisone, nor is there a hormonal equivalent for ACTH.

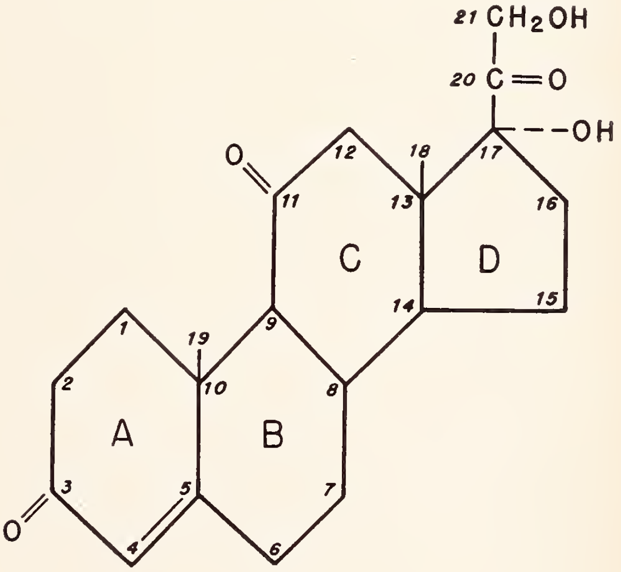

Fig. 1. Structural formula for cortisone. Location of the carbon atoms of the steroid nucleus and side chains are indicated numerically, and rings are indicated alphabetically. Cortisone acetate differs from cortisone only by the substitution of the acetate radical (OAc) for one of the hydrogen atoms at carbon 21 ($-CH_2OAc$ instead of $-CH_2OH$). Presence or absence of the acetate radical at this position was found not to be an influencing factor in antirheumatic activity of cortisone. [Reprinted from J.A.M.A.[2]]

(Continued on Page 851)

From the Division of Medicine, Mayo Clinic, Rochester, Minnesota.

Read in Symposium on Cortisone and ACTH at the meeting of the Minnesota State Medical Association, Rochester, Minnesota, April 30, 1951.

THE USE OF CORTISONE AND ACTH IN THE MANAGEMENT OF SEVERE BRONCHIAL ASTHMA AND NASAL ALLERGY

GILES A. KOELSCHE, M.D., CHARLES K. MAYTUM, M.D., LOUIS E. PRICKMAN, M.D., HADDON M. CARRYER, M.D., and GUSTAVUS A. PETERS, M.D.
Rochester, Minnesota

DURING the past two years, we have treated thirty-five patients suffering from bronchial asthma or nasal allergy or both with cortisone or ACTH. Nine patients had, and were treated for, both conditions, in some instances simultaneously. The results of the studies on each condition will be summarized briefly.

Twelve of the thirty-five patients, ranging in age from twenty-six to sixty years, were afflicted with hay fever or vasomotor rhinitis. The cortisone was given intramuscularly or orally in doses of 50 to 200 mg. daily for seven to twenty-one days. The ACTH was given in varying doses, which did not exceed 25 mg. every six hours, for two to fifteen days.

Seven patients were afflicted with hay fever. Six were given cortisone and two, ACTH. One patient received both on different occasions. The hay fever was well developed before the medication was started. Moderate to marked symptomatic relief which was confined to the period during which cortisone was administered was noted in five cases. One patient noted little if any relief, we believe because of inadequate dosage. Of the two who received ACTH, one was remarkably relieved by each of two courses of treatment ten days apart and of forty-eight hours' duration each. The other patient noted slight to moderate symptomatic relief after the second and third of a series of three courses of treatment given at intervals of five days.

Five patients were afflicted with vasomotor rhinitis. Three were given ACTH and two, cortisone. All of these reported marked symptomatic relief which continued for a few days to five weeks after medication had been discontinued. Nasal polyps were observed to shrink to 50 per cent of their original size while patients were receiving these hormones.

Thirty-two patients, ranging in age from nineteen to sixty-nine years, afflicted with bronchial asthma were treated with cortisone or ACTH. Twenty-seven of these had severe nonseasonal asthma, whereas five had only seasonal asthma associated with hay fever of the fall type due to sensitivity to pollen of ragweed.

The total dose of cortisone per patient ranged from 500 mg. to 15 gm. and was given over periods varying from five to 216 days. The amount of ACTH per patient ranged from 140 to 2,825 mg. and was given over periods varying from three to 180 days.

Most of the patients to whom the maximal amounts of the hormones were given were receiving them primarily for rheumatoid arthritis or periarteritis nodosa. The asthma was an associated condition of secondary importance although in some instances causing real and constant distress.

Of twenty-seven patients who had severe nonseasonal asthma, seventeen received cortisone and fourteen ACTH. As the figures indicate, four patients were treated with both hormones on different occasions. The duration of the asthma was as long as forty-one years in one instance. Four patients had been disabled completely for as long as three years. Of the fourteen patients who received ACTH, all noted symptomatic improvement in from six hours to a few days after the injections were started and thirteen obtained moderate to complete symptomatic relief for three to five weeks after the injections had been discontinued. In one case only were the results difficult to appraise, although the patient claimed moderate relief. Of the seventeen patients who received cortisone orally or by injection, fourteen experienced moderate to complete symptomatic relief. Improvement was noted two to four days after the medication was started, and the relief ultimately noted would last three weeks to two months after the use of the hormone was discontinued. Of the three patients who had no

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Read at the annual meeting of the Minnesota State Medical Association, Rochester, Minnesota, April 30, 1951.

From the Division of Medicine, Mayo Clinic, Rochester, Minnesota.

benefit, one had severe emphysema, and the other two received doses which in retrospect seem inadequate. Two patients who had severe nonseasonal asthma went through major surgical procedures without incident after their asthma was controlled. No correlation was noted between the results of treatment with hormones and the tests for cutaneous sensitivity.

The five patients with seasonal asthma associated with fall hay fever had had recurrent trouble for eight to twenty-four years. Four patients were treated with cortisone and two with ACTH. One patient, as is evident, was treated with both hormones on different occasions. The asthma of four patients having hay fever disappeared within twenty-four to forty-eight hours after treatment with cortisone was started and did not recur as long as treatment with the hormone was continued. It would recur, however, if administration of the hormone was discontinued before the hay fever season was over. Of the two patients given ACTH, one who had previously had seasonal asthma with hay fever for twenty years had none from the time administration of ACTH was started. The other one who had had seasonal asthma for twenty-four years continued to have sporadic nondisabling attacks despite the injections of ACTH.

Summary and Comments

The administration of cortisone and ACTH to our patients afflicted with severe bronchial asthma or nasal allergy or both has been followed by appreciable symptomatic relief in most instances. The duration of this beneficial effect has varied from a few days to eight weeks after use of the hormones was discontinued. The mechanism by which these substances ameliorate the symptoms of bronchial asthma and nasal allergy is not established but it may be related to the known antihyaluronidase effect of 17-hydroxy-11-dehydrocorticosterone.

The administration of cortisone and ACTH in the dosage and for the duration employed has not been followed by any undesirable symptoms or manifestations.

We believe, therefore, that these substances, although possessed of no demonstrable curative value, have a place in the symptomatic treatment of patients afflicted with severe bronchial asthma or nasal allergy who have not responded well to other orthodox therapeutic measures.

SYMPOSIUM ON CORTISONE AND ACTH

Introduction

(Continued from Page 849)

At this stage of clinical experience it is difficult to be concise and brief concerning the optimal method of using cortisone and ACTH in various diseases. Suffice it to say here that doses of cortisone and ACTH need to be carefully tailored not only to the individual patient but also to the varying requirements of the different diseases for which the hormones may be used. The great value of administering the hormone early in the course of a disease will be emphasized by the experiences to be related by members of this panel.

Though of different origin and structure, cortisone and ACTH have similar if not identical effects on the nonhormonal diseases for which they have been used. Hence, in a decision regarding choice of hormone to use, factors of cost, availability and ease of administration may be considered.

A dosage schedule based merely on casual or superficial consideration of the varying requirements may lead to unsatisfactory if not disappointing results. The disadvantages of overdosage are important and have perhaps not yet been fully appreciated.

Anyone who intends to administer cortisone or ACTH should first acquire as much information as possible regarding the potentialities of these hormones. The participants in this symposium hope they may be of help in this regard.

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EFFECTS OF CORTISONE AND ACTH ON PERIARTERITIS NODOSA

RICHARD M. SHICK, M.D., ARCHIE H. BAGGENSTOSS, M.D., BENJAMIN F. FULLER, M.D., and HOWARD F. POLLEY, M.D.
Rochester, Minnesota

UNTIL recently there has been no known definitive therapy which either prevents periarteritis nodosa[6,11,12] or affects its course. It has been reported that sulfonamide compounds have effected a cure in some cases,[4] but in our experience neither the sulfonamides nor the antibiotics have been of any apparent value. The possibility that in some cases periarteritis nodosa may be due to hypersensitivity has suggested the use of the antihistaminic drugs.[8,10] Although our results with the use of these drugs in a small group of cases have not been impressive, this type of treatment probably warrants further trial.

Berthrong and his colleagues[3] have shown experimentally that ACTH may prevent vascular lesions which otherwise would appear after sensitization. Marked clinical improvement in a single case of periarteritis nodosa during administration of ACTH has been reported by Goldman and co-workers.[5] Stillman[13] commented briefly on one patient with periarteritis nodosa who responded dramatically to ACTH but showed evidence of partial relapse after treatment was discontinued.

Materials and Methods

In the present clinical study, cortisone or ACTH or both were administered to thirteen patients who had periarteritis nodosa. There were nine men and four women, ranging in age from thirty-four to sixty-nine years. Duration of symptoms prior to treatment varied from three weeks to ten months. Clinical diagnoses were confirmed histologically by biopsy in all cases.

Dosage of cortisone varied, depending on clinical and biochemical response and results of follow-up biopsy. In some cases treatment was continuous, and in others it was interrupted. The following dosage schedule was employed in the majority of cases: 300 mg. of cortisone were given the first day and 150 to 200 mg. daily thereafter for six weeks, after which the dosage was gradually tapered off. Dosage and duration of administration of ACTH were of necessity limited because of a current shortage of the drug.

Biopsy was repeated at intervals in the course of treatment and as long as seven months thereafter. In two cases, necropsy was performed twelve and twenty-two days respectively after withdrawal of cortisone. In the remaining eleven cases, follow-up studies or reports were obtained one to fifteen months after treatment.

Results

All patients experienced prompt and usually dramatic subjective relief after institution of hormone therapy. In most cases, fever subsided within twenty-four to seventy-two hours, whereas sedimentation rates decreased to normal or nearly normal more gradually. Partial clinical relapses occurred in some cases after withdrawal of the drugs, but improvement followed when treatment was resumed. The majority of patients were critically ill when treatment was started. Despite initial improvement, two died in cardiorenal failure. One patient has required continuous suppressive therapy with cortisone because of previous relapses following withdrawal of the drugs. The disease of the remaining ten patients apparently was in remission when they were last observed one to fifteen months after treatment, although evidence of residual vascular damage had persisted in most instances.

The two patients who died were observed for eleven weeks and five months, respectively. One received a total of 3.6 gm. and the other a total of 13.4 gm. of cortisone. At necropsy, evidence of complete healing of all arterial lesions was found. In the process of healing, however, fibrous obliteration of the lumina of the involved vessels had occurred, resulting in a widespread visceral infarction.[2]

Some rounding of facial contour, with or without mild acne, developed in all patients during treatment, but disappeared after withdrawal of the hormones. Profound disturbances of plasma

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Dr. Shick is with the Division of Medicine, Dr. Baggenstoss with the Section of Pathologic Anatomy, and Dr. Polley with the Division of Medicine, Mayo Clinic, Rochester, Minnesota, and Dr. Fuller is a Fellow in Medicine, Mayo Foundation, University of Minnesota, Rochester, Minnesota.

Read in Symposium on Cortisone and ACTH at the meeting of the Minnesota State Medical Association, Rochester, Minnesota, April 30, 1951.

electrolytes, which occurred preterminally in the two patients who died, were not observed in the other cases. In both cases the adrenal cortices had undergone moderate atrophy and their lipoid content was decreased. Bronchopneumonia, which developed in two cases during hormone therapy, responded favorably to the use of antibiotics. Delayed healing of biopsy incisions was not observed in any of the cases.

Comment

It is important to bear in mind that periarteritis nodosa is not invariably an acutely fatal disease. The course may be chronic, characterized by periods of remission and exacerbation, and rarely recovery may occur. The permanence of recovery must be questioned unless a long-term follow-up study is made. Even then, clinical remission may not necessarily indicate histologic healing. Proof of the latter cannot be established by biopsy, since it is possible to examine only superficial vessels in a small area. Although these may give no evidence of the disease, in either active or healed phase, other vessels may be affected.

Certain clinical phenomena that followed the administration of cortisone and ACTH in these cases are worthy of note. They include (1) prompt subjective relief, (2) subsidence of fever in most cases within twenty-four to seventy-two hours, (3) gradual decrease of sedimentation rates, (4) partial relapses in some cases after withdrawal of the hormones, and (5) improvement in these cases after treatment was resumed.

Cases of periarteritis nodosa in which necropsy revealed no evidence of active inflammation in any of the vessels examined have been reported but are exceedingly rare.[1,7] The complete disappearance of all histologic signs of active inflammation in our two cases within three weeks and three months after biopsy had disclosed the presence of acute arteritis is a unique occurrence and difficult to interpret as coincidental.

Summary and Conclusions

Cortisone and ACTH apparently can induce clinical remissions in periarteritis nodosa and may alter the primary pathologic process effectively. Permanent remissions, however, remain to be demonstrated. Our impression is that treatment must be given early, before widespread vascular damage has occurred, and should be intensive and prolonged.

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ACUTE RHEUMATIC FEVER TREATED WITH CORTISONE AND ACTH

A Report on Fourteen Cases

HARRY L. SMITH, M.D., and ARLIE R. BARNES, M.D.
Rochester, Minnesota

FOURTEEN patients with acute rheumatic fever were treated with cortisone and adrenocorticotropic hormone (ACTH). Ten patients were treated with cortisone and four with ACTH. Eight of these patients were in their first attack of acute rheumatic fever and had had no previous damage to the heart valves or to the heart. Two patients were in their first attack but their conditions were complicated by rheumatic carditis. Four patients were having recurrent attacks, and two of these had evidence of previous damage to their heart valves.

In studying the effect of any agent on the course of a self-limiting disease such as rheumatic fever, one must take into account the stage in the course of the disease at which the drug is administered. In rheumatic fever the results of administering any effective agent will vary according to whether it is given to a patient early or late in the first attack or to a patient who has had previous attacks of the disease complicated by valvular injury or cardiac enlargement, or both. Furthermore, the results in acute rheumatic fever may vary, depending on the presence or absence of rheumatic carditis or of congestive heart failure.

The opinion is often expressed that unless cortisone and ACTH are effective weapons in the management of acute rheumatic myocarditis, their usefulness in rheumatic fever is open to serious doubt. Rheumatic myocarditis is encountered chiefly among patients who have recurrent attacks of rheumatic fever superimposed on hearts previously damaged by the disease. It is also encountered among patients with unusually severe rheumatic fever, and until now no effective method of suppressing the myocarditis in these patients has been known. If acute rheumatic fever did not produce acute myocarditis, acute endocarditis and eventually end in chronic endocarditis, it would not be a serious disease.

Cortisone and ACTH controlled or suppressed the acute symptoms of acute rheumatic fever in all fourteen instances, and in some of the cases, most dramatically. The temperature returned to normal and the joints became symptom free in five days or less. Excluding those patients who had active myocarditis, heart rates returned to normal in about five days. The P-R intervals returned to normal on the average in three weeks or less. The sedimentation rates returned to normal in eighteen days in eleven of the fourteen cases. The hormones did not seem to cure the disease or shorten the duration of the acute rheumatic state. If administration of the hormones was discontinued before the disease had run its usual course, the acute symptoms often recurred.

To be most effective, it appeared that cortisone or ACTH should be given in adequate amounts early in the acute phase of the attack of rheumatic fever. Thereafter reduced amounts should be given continuously or in courses, until it can be established that the activity of the disease is at an end.

Ten patients in their first attack of acute rheumatic fever and one who was having a recurrent attack of rheumatic fever but who had no evidence of myocarditis prior to treatment with the hormone received cortisone or ACTH. Six of these patients, when re-examined at periods of one to fifteen months after their dismissal from the hospital, had no cardiac murmurs or evidence of cardiac enlargement. Two of these patients, subsequent to these re-examinations, have had recurrent attacks of rheumatic fever with appearance of murmurs and cardiac enlargement.

Five of the fourteen patients had clinical evidence of myocarditis before cortisone was administered. (Two were in their first attack.) It was our impression that the hormone exerted a favorable effect on acute myocarditis in these instances.

Observation of these fourteen patients over a much longer period will be required to determine

(Continued on Page 889)

From the Division of Medicine, Mayo Clinic, Rochester, Minnesota.

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SYMPOSIUM ON CORTISONE AND ACTH

Summary

HOWARD F. POLLEY, M.D.
Rochester, Minnesota

INVESTIGATION of the therapeutic value of cortisone and ACTH has opened new realms for clinical and laboratory investigation. Undoubtedly, current concepts of the therapeutic usefulness of these hormones will be modified with further experience. For the present, the nonhormonal diseases for which cortisone and ACTH offer greatest promise are those described as conditions resulting from tissue reactions of hypersensitivity or allergic disorders. Special emphasis should be made of acute rheumatic fever and inflammatory ocular diseases, which have great social and economic importance. Asthma, hay fever, drug sensitivities, rheumatoid arthritis and conditions resulting in states of physiologic shock also warrant emphasis.

Cortisone and ACTH are powerful agents, both physiologically and pharmacologically, but they modify, not cure, the diseases on which they have beneficial effects. These hormones affect the reversible tissue reactions, not the irreversible residues of the susceptible disease.[1] It is apparent, therefore, that the hormone must be given early in the course of the disease if it is to be optimally effective. Misusing these hormones in the late stages of otherwise susceptible diseases must be carefully avoided. Furthermore, discriminate use of cortisone and ACTH would lead to increased availability of the hormones for patients for whom they would be of most value.

It must be remembered that the potentialities of cortisone and ACTH include the masking of the signs of intercurrent infections and other disease, for example, pneumonia, acute appendicitis, ruptured abdominal viscera and so forth. Thus careful observation of the patient's physical condition is of added importance. The concomitant use of appropriate antibiotics or other treatment may be indicated on occasion.

The mechanism of action of cortisone and ACTH remains unknown.[1] Perhaps it is simply a matter of supplying extra adrenal hormone to protect susceptible tissues from a wide variety of irritants.

The presently available information concerning effects of cortisone and ACTH certainly suggests that it may be essential to avoid or keep at a minimum the state of hormonal excess. This is best accomplished by constantly using minimally effective doses of either hormone. Such a plan is especially important in the treatment of chronic disease. In active rheumatoid arthritis, for example, doses of cortisone in the range of about 50 mg. per day may suffice for adequate control of the reversible part of the inflammatory reactions.[2] Such doses are less than those often recommended, but they may be more suitable when long-term administration is indicated. In a more fulminating, acute inflammatory process, such as acute rheumatic fever, on the other hand, larger doses of about 200 mg. of cortisone daily are sometimes needed, especially in early stages of the acute disease. Dosage thus is determined, in part at least, by the varying degree of active inflammatory reactions of different diseases, but also even by the variations of the same disease from time to time. Hence, it must be expected that dosage requirements of cortisone or ACTH may need to be modified either slightly or greatly from time to time.

The management of diseases benefited by cortisone and ACTH is not yet a simple procedure. In most instances at this time hormone therapy will not entirely supplant measures which have proved to be valuable prior to introduction of these hormones. However, with further experience the determination of optimal methods of using these potent hormones may be anticipated.

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From the Division on Medicine, Mayo Clinic, Rochester, Minnesota.

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DIAGNOSTIC PITFALLS IN CARDIOLOGY

HOWARD B. SPRAGUE, M.D.
Boston, Massachusetts

IT is a common fate for the specialist to have difficult diagnostic problems reserved for him, but the important original screening of such patients falls in the field of general practice. It is, therefore, vital for the general practitioner to be alert to the pitfalls of diagnosis. In the field of cardiology, these are many and they are as common in the subjective as in the objective aspects of a cardiac case. An example of this is the diagnosis of angina pectoris, which is not made by any type of physical or laboratory examination but only by what the patient tells you himself. That is why it is so important for the physician to take the history himself and not to delegate it to an assistant or a technician.

Let us consider first some of the features of the history and of the symptoms of which the patient complains. The two major types of heart disease in which the etiologic background is important are rheumatic and syphilitic heart disease, but it is not uncommon in my experience to be able to dig out a history of these infections only after I have discovered mitral stenosis or aortic regurgitation. This is an example of the value of returning again to the history of the patient after the physical signs have revealed the true pathologic condition.

One of the commonest symptoms is that of shortness of breath, and it is not always easy to differentiate dyspnea on effort from the sensation of cutting off of the breath, characteristic of angina pectoris in those patients in whom the complaint of pain is not prominent. However, if you ask the patient whether or not he puffs after exertion, his affirmative answer would favor real dyspnea as the complaint.

I believe it is always wise to approach a cardiac problem as if it were probably not one of heart disease. In this way, one keeps in mind other causes of shortness of breath. Important ones are anemia, obesity, tobacco, primary pulmonary fibrosis and emphysema. Again, if one asks a patient who is obviously in no distress if he or she is short of breath, and the reply is "terribly," one can generally assume that this is an instance of the deep sighing respiration of anxiety. The history will further reveal that the patient complains of difficulty in getting a deep breath, not related to effort and coming particularly when the individual is under nervous strain. Many of you may have had this sensation yourselves. It is one in which respiration comes into consciousness, and it seems impossible to get a satisfactory breath until several trys have been made and one gets over the crest of the hill. There is relief for a variable time thereafter and the sensation then recurs. I generally am considerably reassured from hearing such a story and, in turn, reassurance of the patient is very helpful in therapy. I have, at times, thought that coramine by mouth helped this symptom, but patients of this sort tend to be very suggestible and they might have reacted to a placebo.

I do not intend to discuss all the conditions which have masqueraded as heart disease. Many of these have succumbed to more extensive electrocardiographic study. Herrick, for example, in 1935 described thirty-five conditions which he had seen confused with coronary occlusion. At the present time, coronary disease is so common that it is usually the first thing thought of when the patient has chest pain. Fortunately, very few patients with coronary thrombosis are now operated on because of a diagnosis of an abdominal condition requiring surgery. However, I would like to make a few comments on pain.

The first of these is that it is not always recognized that the pain of angina pectoris and coronary occlusion may be confined to the back of the chest. One should always think of the possibility of dissecting aortic aneurysm, but I have definite examples of myocardial infarction with back pain.

The shoulder-arm syndrome pain following myocardial infarction should always be remembered because the continuation of pain in the left shoulder and arm may be interpreted both by the physician and the patient as a continuance of the destruction in the heart muscle. Again, reassurance and physiotherapeutic measures are very heartening to the patient.

I have seen a rare instance of gallstone pain re-

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lated to effort. I have in mind a young woman with this type of pain with a multitude of small stones in the gall bladder and, on several occasions, effort such as lifting her baby squeezed these small stones into the cystic duct.

In young people, particularly after respiratory infections, the sudden onset of chest pain should always bring up the possibility of nonspecific pericarditis, the differential diagnosis of which is usually relatively easy with serial electrocardiograms. The prognosis, as shown by fifty such cases which we have studied and followed up to twenty years after the attack, has been uniformly good.

Other confusing causes of pain are hiatus hernia, esophageal ulcer, the scalenus anticus syndrome, superior pulmonary sulcus tumor, and spinal metastases. By far the commonest type of chest pain which I see, except for angina pectoris, is that which I group as orthopedic and due to radicular irritation. Such pain is usually over the precordium, may be very severe, and may be relieved or produced by change in position. It is often associated with tenderness in the region. The pain may be sharp or dull, transient, or persistent for hours. It occurs in all sorts of fatigued individuals and responds to local heat and heat over the spine.

Collapse or syncope is often difficult to evaluate. One should try cautious carotid sinus stimulation in such patients to see if this may be the mechanism of the attack. It is well to remember that paroxysmal heart block can occur as a cause of syncope even in those individuals who have normal A-V conduction by electrocardiogram between the attacks. Rapid tachycardias can produce syncope as in paroxysmal auricular or ventricular tachycardia and paroxysmal auricular fibrillation of a benign type can mimic coronary occlusion by producing pain and collapse. In all these arrhythmias, after return to normal conduction, there may be transient electrocardiographic changes which we must not over-interpret in the absence of other evidence of organic heart disease. A patient with paroxysmal tachycardia may be labeled neurotic if the attacks are short and he is not seen by a physician during one. A patient whom I saw recently complained of great discomfort due to a slow, heavy heart beat. I was able to observe him with this and found that he was having regular bigeminy and not heart block, and he was cured with quinidine.

In 1946, Dr. Walter Alvarez published a paper on "Cerebral Arteriosclerosis with Small, Commonly Unrecognized Apoplexies." This paper is well worth reading. Dr. Alvarez pointed out that these minor cerebral attacks with collapse followed by persistent lowering of the blood pressure were, at times, confused with coronary thrombosis. I have had occasion to confirm these observations, and we should be careful not to miss the diagnosis.

Signs

Simple sinus tachycardia is, at times, difficult to explain. Anxiety, infection, anemia, drugs such as benzedrine and thyroid, thyrotoxicosis and as a sequela of heat stroke may be cited as instances. It may, of course, be a sign of an active process in the myocardium or of an early stage of cardiac failure. In a few cases that I have followed for many years I have been unable to explain the constant tendency to simple tachycardia. I could only assume some deep-seated anxiety or frustration which my psychiatric friends were unable to discover.

Edema.—Edema of the legs is more common in non-cardiac than in cardiac conditions. Varicose veins or causes of local lymph stasis are more frequent than heart failure. The association with ascites should always bring constrictive pericarditis to mind. This is especially true if the patient is not orthopneic.

Cyanosis.—This may be due to veno-arterial shunts in congenital heart disease or heart failure, but I have seen it with arteriovenous communications in the lungs, paroxysmal methemoglobinemia, and even confused with argyria in a child, from the continuous use of argyrol nose drops.

Cardiac enlargement is, of course, most common in cases of valvular disease or hypertension. Do not forget, however, both myxedema and hyperthyroidism, particularly in older individuals, arteriovenous aneurysms, anemia, vitamin deficiencies, and occasionally following virus infections and sensitization with sulfonamides. Remember also that there are still a few examples of cardiac enlargement of unknown origin. We see a few of these every year and even at autopsy the pathologist is unable to explain the mechanism. Dilatation is preponderant and often more in the right ventricle.

This may be as good a place as any for a few comments on the limitations of x-ray examination of the heart. Many radiographers are willing to admit the difficulty of determining whether it is the right or left ventricle which is enlarged. This, of course, is particularly true in children, and in these instances the electrocardiograph is a more discriminating instrument.

The performance of a Valsalva experiment voluntarily or unconsciously may produce very marked reduction in heart size. A high diaphragm and obesity often give a false impression of cardiac enlargement, as does the pericardial apical fat tab. It is less well recognized that such extracardiac accumulations of fat may occur on the right side of the heart as well as the left. In the diagnosis of mitral stenosis, it is well to recall that in many of these cases the transverse diameter of the heart is not increased and there may not be any more prominence of the upper left border than appears in some normal vertical hearts. Prominent pulmonary arcs are not always due to mitral stenosis, congenital heart disease, nor cor pulmonale from long-standing pulmonary disease. For example, they may be found in congenital pulmonary endarteritis in children, causing pulmonary hypertension.

Extraordinary distortion of the cardiac silhouette may be produced by funnel chest causing apparent enlargement in an anteroposterior view which will show on lateral views a much flattened heart shape. Auscultatory signs are also very confusing in these cases.

Another pitfall lies in the right sided aorta passing posterior to the esophagus. In other words, organic heart disease may be both overdiagnosed and underdiagnosed by the x-ray.

Auscultation.—This brings me to my favorite subject, namely, auscultation, because in the diagnosis of mitral stenosis, for example, one may generally throw away all diagnostic aids except the stethoscope, but I will admit that phonocardiography has had a humbling influence as regards dogmatic statements about auscultation. However, for some thirty years at our clinic at the Massachusetts General Hospital under the influence of Paul D. White, we have emphasized the necessity for listening to all hearts with both the open bell and the diaphragm type of stethoscope. It was for that reason that twenty-five years ago I devised the stethoscope with the combined chest pieces connected with a valve making it easier to perform these examinations. Let me say that in addition to whatever method of auscultation you use the following areas should be explored: (1) the cardiac apex with the open bell stethoscope lightly applied with the patient in the left lateral position, (2) the left sternal border with the breath held by both the patient and the examiner, (3) over the back, (4) over the clavicles in children, (5) the axillary regions because of the possibility of picking up congenital arteriovenous shunts in the lungs.

There are many complex auscultatory problems which we need not go into, but of the simple things I see the following most commonly missed:

1. Mitral stenosis with normal rhythm due to the failure to recognize the sharp character of the first heart sound. Often the diagnosis can be made by palpating the apex beat, and I have seen patients in whom I feel sure the diagnosis has been missed for over fifty years. I recently saw a woman in her middle fifties who had been considered only neurotic and a divorce from her husband had been recommended, but in whom the symptoms were clearly due to unrecognized mitral stenosis.

2. Mitral stenosis with auricular fibrillation in the terminal stages of congestive failure, cyanosis, and severe dyspnea. Such a patient is orthopneic with noisy breathing, and it is difficult to get the patient into the optimal position for auscultation and, therefore, no murmurs are heard. There is, however, right axis deviation in the electrocardiogram and a good first heart sound. The latter is the important point, namely, that the first heart sound is too good for this degree of heart failure. Very rarely this situation may turn out to be cor pulmonale, but it is far more commonly due to rheumatic heart disease with mitral stenosis.

3. Slight aortic regurgitation which can only be revealed by listening with the diaphragm stethoscope with the patient leaning forward at full expiration. Many young men with this lesion were undiagnosed and accepted for the Armed Services, partly because auscultation had to be carried out in induction centers in noisy rooms by inexpert observers.

4. Aortic stenosis, because of a failure to note the quality of the murmur, the diminution of the second heart sound and, at times, the greater intensity of the murmur either at the apex or at the

left sternal border rather than at the classical aortic area. I wish to emphasize that too much attention has been paid to the finding of a thrill in aortic stenosis. We have recently completed studies showing that the finding of a thrill adds no more to the accuracy of diagnosis than proper attention to the auscultatory findings. Naturally, in the presence of cardiac failure in terminal states the systolic murmur may be much diminished in intensity, and it is then that one must pay great attention to the marked diminution or disappearance of the aortic second sound as well as to the rather groaning characteristic of the murmur.

A very interesting pitfall in the differential diagnosis of aortic stenosis was revealed at a clinicopathological conference at the Massachusetts General Hospital last year where a rupture of an apparently normal chorda tendinaea of the mitral valve gave auscultatory findings that everyone agreed prior to autopsy were due to calcific aortic stenosis.

5. Gallop rhythm of slight degree, especially in relation to coronary occlusion during the acute stage or during convalescence. After a patient with myocardial infarction is ambulatory, mild exercise may be tried to bring out a latent gallop rhythm which I believe is very important in prognosis as indicating a poorly functioning myocardium. I recently saw a patient who had only slight gallop rhythm and equivocal electrocardiographic signs, but who died six days later and showed infarction of the whole heart, right and left ventricles and septum with occlusion of all the major coronary arteries.

6. The normal venous hum over the clavicles in children confused with patent ductus arteriosus. Such a murmur may be obliterated by pressure over the supraclavicular veins. It is, of course, very important that this differential diagnosis be made because of the practically routine indication nowadays for ligation of a patent ductus arteriosus. The same statement should be made about congenital heart disease in general, namely, that we cannot disregard accurate diagnosis of the lesions because of the great possibilities of cardiovascular surgery that are now opening up. At least, we should be able to select congenital cardiacs who should be submitted to further study, such as cardiac catheterization and angiocardiography.

I have emphasized particularly the importance of not missing the diagnosis of mitral stenosis because in this field also developments in surgery point to the probability that an increasing number of patients with mitral stenosis will be selected for surgical relief. I make it a rule that every patient with auricular fibrillation shall be assumed to have rheumatic heart disease with mitral stenosis until proved otherwise. This does not mean that we should miss cryptic thyrotoxicosis nor such rare conditions as myxoma of the auricle with a mitral diastolic murmur, but at the Massachusetts General Hospital in the years 1944 to 1949, we were able to study 115 patients with rheumatic heart disease in 1,025 autopsies of individuals dying of various diseases over the age of fifty, and it is a good thing to bear in mind that rheumatic heart disease can exist at any age.

There is one other curious auscultatory sign that you may run across. You may be called some day to see a patient whose heart may be heard beating with two or three loud sounds, across the room. This is rather terrifying to the patient and his family, but, in my experience, has been due to a benign, spontaneous, relatively localized pneumothorax with air in contact with the pericardium. Recovery without therapy, except rest, is the rule.

Electrocardiography

I have reserved for the end of this discussion a consideration of some of the pitfalls in electrocardiography. These concern largely the abnormalities in the T wave and ST segments. In 1941, I listed some forty conditions other than heart disease which altered the T waves. Since then, this list has been tremendously increased, although we are in the process of discovering factors common to many of these conditions which affect the electrocardiogram, particularly intracellular and extracellular electrolyte changes. Potassium is under the greatest scrutiny at present. However, these variations in the T waves such as flattening or inversion have too often been invoked to the point of developing cardiac neurosis in the patient. A few of the conditions recently observed to alter the electrocardiogram are eating, hypnosis, fright, acidosis, hyperventilation, hepatitis and spontaneous pneumothorax. Between 1941 and 1948, I collected from the *American Heart Journal* over 150 such references. This knowledge of the variability of the electrocardiogram in normals gives one pause. The situations

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SURGICAL TREATMENT OF VARICOSE VEINS

LAURENCE D. HILGER, M.D.
Saint Paul, Minnesota

AS of May 2, 1951, there is no cure for varicose veins. There is the possibility of mechanically improving the circulation to the extremities by the judicious use of procedures fitted to the pathologic picture of the return flow system individually encountered in the increasing number of humans so afflicted. There is also the possibility that by choice of the wrong procedure, or only halfway treatment, the condition may be unaltered, yes, even made worse. The doctor who undertakes the surgical attempt to improve the varicose patient should be aware that he is commencing a tedious, long, patience-tasking and often poorly appreciated struggle, that is only going to be successful inasmuch as it has been prepared for and inasmuch as it is carried through to its completion. There can be no compromise, and a patient prepared for the program to follow the initiation of care is a patient infinitely better readied for the rigorous job ahead. For this reason it is imperative that the first conference with the surgeon who is assuming the task be detailed and specific in outlining the limitations that are inherent in the therapy offered. The doctor who glibly states that he will cure the veins is either ignorant of what is possible, or else is worried that the patient will not be convinced of the efficacy of the treatment, which, up to this time, is available.

If it is permissible in a presentation of this character to suggest that the economic picture is also a factor in the ultimate accomplishment, then I would cite the need of a concrete agreement in regard to a fee for the entire procedure. I believe that in this work the individual surgeon must set himself up as a one-man insurance company, and establish with his patient the over-all cost of the surgery and aftercare until the obliteration of the veins demonstrating altered physiology is realized, or as nearly so as surgically possible. Such a plan will obviate the disgruntled patient, half treated and without knowledge of how much to come, independently terminating the process and with the partly completed effort going forth to proclaim to any and all that the surgical therapy is not good. The frequency of failure of the current method of treatment of varicose veins is too well known to the laity to need emphasis to the profession. It is, therefore, necessary that the treatment be as thorough and painstaking as only one approaching the task with deliberate and dogged determination can make it. This, of course, decries the practice of making vein surgery an encore to other operative effort such as perineorrhaphies in which the mere ligation of the greater saphenous and a few or all of its tributaries at the saphenofemoral junction is hurriedly accomplished and no more. As a result, the patient, believing that he has had the ultimate in treatment of varicose veins, an operation, is discharged from the hospital and later becomes convinced that that operation for varicose veins is not much good.

The picture is not all gloom, however. The more recent study has helped to make it apparent that the chief features of varicose conditions considered from a physiological point of view are valve incompetence, raised venous pressure and edema. Probably the commonest primary defect is congenital inadequacy in one or more pairs of vein valves in the upper end of the long saphenous system. The familial tendency suggests congenital weakness. There are also those cases which must be ascribed to destruction of valves during thrombophlebitis, either superficial or deep, of the leg and thigh. In this latter type the damage is often widespread, making such patients difficult to treat satisfactorily. In the congenital weakness group mild incompetence during the years prior to adolescence may alter function thereafter. A generalized venous breakdown may be accelerated or precipitated by pelvic congestion (uterine enlargement in puberty or pregnancy, constipation, pelvic inflammatory disease, fibroids or other conditions), by prolonged standing or by occupations which involve repeated straining with raised abdominal tension. The fact that edema and ulcer are sometimes seen after all varicosities have been eliminated makes it apparent that sometimes the varicies are an effect rather than the cause of the disease. That the valves of the main trunk are not the only sources of difficulty is well

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known. The incompetent perforator may be converted from a partial cause to the cause following incomplete therapy directed only to the main trunks. R. S. Sherman has certainly made an exhaustive study of communicators, and a careful study of his report should be mandatory for anyone attempting vein surgery. However, there is a point at which it becomes a procedure of decreasing return in benefit derived in the too prolonged and detailed ligation or stripping of smaller branches that are present in some cases. It is a product of experience that will allow one to strike a happy medium.

It seems that the knowledge that the greater saphenous usually courses between the layers of the deep fascia in the lower half of the thigh and receives a constant perforator at the junction of the middle and upper thirds of the thigh from the mid-Hunter's canal, a fairly constant branch from the medial genicular venous plexus and one from the subsartorial vein, is important. It is also a rather frequent finding to encounter still another perforator near the upper end of Hunter's canal. It can be picked up by the distal extension of the incision made to ligate the mid-Hunter canal perforator. The high vein is by no means as constant as the first three mentioned and it is easier to look for it from the higher incision and ligate it before proceeding to strip the long saphenous vein. In the lower leg the communicating veins connect the deep and superficial systems along the intramuscular septa and through the deep fascia. Their location is so variable that they cannot be well described, but about three quarters of them are antero-medial and the remaining one quarter about equally divided between a postero-lateral and antero-lateral distribution. It has been said that incompetency in the lower leg is less common than in the thigh, but of late this has not been too true in the patients I have had the opportunity to observe.

With regard to treatment, styles repeat. In 1845, when Francis Rynd introduced the hypodermic syringe, a flood of different solutions was released into varicosities. The treatments were vigorous, to say the least, and because of some of the bad results this treatment fell into disrepute. Ehrlich revived the procedure by proving that thrombus could be safe. The results obtained by hypertonic salt, sugar, foreign protein and various other organic materials were not lasting. Schiassi in Bologna in 1908 first used ligation and retrograde injection above the knee and Nobili, in 1921, carried this procedure more proximally to the groin. In 1930 de Takats introduced high ligation as an ambulatory procedure, and sodium morrhuate came into use the same year. High ligation and retrograde injection probably received its greatest refinement by Pratt in 1939 with his use of a ureteral catheter for injection. Early ambulation was again stressed, but hazards such as deep vein thrombus, hemorrhage, emboli and reactions to any drug were always present. Failures in high ligation and retrograde injection are attributed to incomplete operative management, inadequate injection, incompetent communicating vessels and recanalization. Stripping dates back to Hippocrates, who punctured varicose veins in 500 B.C., and to Galen, who tore them out with a hook in 180 A.D. In 680 Paulus Aeginata did a mid-thigh ligation and excision for varicose veins. Albucasis, around the 11th Century, treated varicies by multiple incisions in the thigh for ligation. In 1884 Madelung dissected out tortuous veins, and in 1905 Mayo's stripper for cutting the veins loose and tearing them out was employed. Keller and Babcock introduced different methods of stripping in the next two years following this, but complications in those days speedily reduced the popularity of the procedure. Hence again the swing was back to injection, then to ligation and injection, and the past six years is again witnessing a return to the popularity of stripping.

Now, facts are facts, and the bad complications in the early years of this century were the cause of a discontinuance of stripping. It is hard to arrive at a good explanation of why these complications are not occurring now. Of course antibiotics and anticoagulants are given credit, but they are not to me an entirely adequate reason. It is true that the complications do not apparently occur at the same rate, however. Stripping seems logical because it obviates the amazing power of recanalization inherent in veins. The removal of the veins should obviate this cause of failure. However, large clots also have the ability to recannulate even when not in veins. For this reason it has been with hesitation that large trunks with evident large incompetent perforators have been stripped hurriedly by a procedure that seems to be best described as a hauling out of the main trunk with as much of the communicators as will tear loose at the same time. In veins of this type results have been much more gratifying if on the encountering of resistance in the slow, steady stripping motion, auxiliary incisions are made and communicators followed down quite close to their junction with the deep vein and there ligated. It is interesting that Sherman, in an attempt to reduce the amount of bleeding occurring with his multiple ligations, advocates the injection of a sclerosing agent into the long saphenous before proceeding with the dissection and ligations of the tributaries. Thus preparatory to stripping and multiple ligations of communicators, the criticism of sclerosing solutions causing deep thrombus is overlooked. Surely ligation or stripping will not in any way re-extract the sclerosant from the deep veins. It is apparent that arguments for and against ligation and retrograde sclerosis and stripping will continue. The situation demonstrated will best indicate the procedure required. If the greater saphenous is involved without gross evidence of large incompetent communicators, then a mere stripping of the trunk as involved seems logical. If there are large communicators, then a more detailed procedure would be better, in that stripping should be augmented by deep ligation of the large incompetent veins causing backflow from the deep to the superficial venous system. The stripping of veins is not an atraumatic procedure, and at the actual time of stripping it is advisable that the anesthetist be informed so that anesthesia may be deepened. A vagus effect of drop in blood pressure and bradycardia has been noted in some patients. These have been for the most part the type known as vagotonic. The precaution of elevating the foot of the table during ligation and stripping will undoubtedly reduce the amount of bleeding encountered. It also may backfire, and it is possible, and has been experienced, that a sucking of air can be effected into the veins of the lower extremities at the time of stripping. The aftercare of the patient, beyond that immediate period when pressure bandages, frequent walks, elevation of the legs when resting and other more or less standard procedures are quite routine, is worthy of some mention. Incidentally, the matter of elevation of the legs does not mean sitting in a chair with a footstool in front. A leg to be elevated must be above the heart and this entails lying down. Small veins that are of sufficient size to cause difficulty may be injected with sclerosing solution in the weeks following operation. The technique of airblock injection, as described by Orbach, has surely been pleasing in use. The technique of vein injection is truly a gadgeteer's delight, and everyone has his pet method. I have been an adherent of the two tourniquet method, one pneumatic tourniquet placed above and one below the segment to be injected. A tilting table has been most helpful. After the insertion of the needle and aspiration proving that it is in the lumen, the proximal tourniquet is deflated and the table tilted so as to make the legs high. With the vein empty the proximal tourniquet is again inflated, the distal tourniquet having remained inflated throughout. With the syringe at a lower level than the needle, approximately 1 to 1.5 centimeters of air is at the needle end of the syringe and is injected preceding the solution itself. I can only state that the resulting thrombus is smaller in calibre with less surrounding reaction. I believe that Orbach is accurate when he states that the spasm resulting has, in his hands, prevented the sclerosant getting through perforators into the deep vein. The resultant effect has been a remarkably painless local venous spasm with occlusion by intima concretion and not by thrombus organization. The solution itself can be vigorously shaken and injected as a foam to further augment this process. Most important, only a small quantity is used.

The more desirable sclerosant is surely one of the efficient surface active substances. The hypertonic solutions act by dehydration due to a hyperosmosis. They act slowly and are diffuse and not well circumscribed. They develop pycnosis which is somewhat reversible. Surface active agents are hypotonic, they act fast, they destroy the cells, are irreversible and do not diffuse, so the reaction is more localized. Sodium tetradecylsulfate has been by far the most effective and constant. The factor of certain intravenous introduction cannot be too much emphasized. This is truly a state where, when in doubt, do not proceed with caution; do not proceed. Many of the aggravating lesions of lower legs in patients treated for varicose veins are directly the result of extravenous injection. It is much better to send the patient home and have him return on another day than to take a chance. If extravasation does occur, a single stab wound and evacuation will afford great relief and speedier healing. However, the scar is there to forever bother the fastidious.

The post-thrombophlebitic patient with varicose veins is a subject in itself. This is the patient that warrants a venogram before any definitive treatment. With evidence of incompetent valves in the femoral system, vigorous vein therapy will be futile as far as symptoms are concerned, and a popliteal ligation will often be the difference between a quite satisfactory result and failure. In fact, as the venogram becomes more frequently used and its technique more perfected, its utility will be more apparent and real. Interpretation is also somewhat primitive as yet, and only more frequent exposure of both the roentgenologist and the surgeon to technically more perfect radiographs will be productive of more accurate and specific understanding. In any case of retrograde flow of blood irrespective of the deep circulation, not only will no harm be done by ligation, but actually the usual benefit to the varicose veins from this treatment should be expected. Varicose veins do not forward venous blood against gravity. A collateral circulation by non-varicose veins must be established after deep thrombophlebitis, if the leg is not to be grossly congested.

No longer should heart disease and advanced arterial disease be deterrents to judicious irradication of inefficient veins. Greater care must be exercised and the period of completion of treatment greatly prolonged. Any degree of reflex arterial spasm that might follow venous trauma, such as the injection of a sclerosant, has the likelihood of being that which overbalances the arterial supply to a deficient state. This then dictates that the quantity of sclerosing agent be small. Any evidence of the onset of such arterial supply failure should be treated promptly by procaine lumbar sympathetic block.

In the past the false premise has been in order that a leg would be better off with too much venous blood than with no blood at all. In the capillary bed it is true that arterial and venous blood actually mingle with arterial blood at one end and venous blood at the other end of the capillary. Incompetent valves produce dilated veins with increased venous pressure and in turn this increased venous pressure is transmitted back even as far as the capillary loop. The resulting increased capillary bed pressure can then be the clinching cause of the inability of an already depleted arterial supply. Yes, the logic of decreasing peripheral resistance by improving venous return has proved itself and some gratifying improvements in arterial supply have been granted several intermittent claudication cripples. The patient with his new-found ability to walk longer distances then further improves his venous return, and here can be coined a new term: an anti-vicious circle is realized. To obviate arterial spasm as a worry in vein sclerosing in such cases, a patient already having had a lumbar sympathetic neurectomy, is a lesser trauma to the coronaries of the therapist.

The cardiac patient, no longer having a sluggish, sagging tube extending from his feet to his right atrium, is also improved to a degree by shortening these reluctant tributaries. Even if this is not a good explanation, he at least is not burdening his heart by dragging a fluid-overladened lower half along with him.

As to surgical therapy in the pregnant patient, I can only state that four patients aborting in the first twenty-four hours, three after ligation and retrograde injection, and one after ligation and stripping, have forever, I believe, put a dampening effect on my ardor for this surgery during said interlude. The forceful arguments of my obstetrical colleagues to the contrary, I will not do it. Much better, that all pregnant women, preferably, and absolutely those with familial histories wear elastic bandages, not stockings, from the first that they become aware of the fact until one month following delivery. Vanity should not be too much of a factor during pregnancy, and the use of the woefully inefficient elastic stocking because it looks nicer should never be countenanced. There just is no comparison in the poor way elastic stockings attempt to do what bandages do well.

Characteristically, stripping and multiple ligations will take longer in producing a good result, in that healing is more prolonged due to the greater trauma and the more complete and immediate shift of the venous load to the deep circulation. However, the results are more lasting. High ligations and retrograde injection will be more rapid in production of good results, but they are not so lasting.

No matter which type of treatment is employed, a preoperative verbal agreement should be extracted from the patient that he or she will report at least once in every six months for checkup. This is true even though there are a number who will not live up to their contract. A filing system that will initiate a reminder card once every six months is not too great a burden on the surgeon's part, and if such a procedure is followed, the remainder is the patient's liability. The comparison of vein care to the maintenance type of practice in dental prophylaxis is well accepted and understood by co-operative individuals. After all, with the treatment as it is today, we can only offer the patient improved circulation from the legs by the use of more efficient avenues of return blood flow.

There is a characteristic quality of the legs of patients with varicose veins, and it is atony. Whether it is the result or effect, I am not certain, but one thing is sure—atony is not cured by rest. Therefore, the taking of arch supports from shoes is worth while. It may not be immediately possible in the patient who has long been an adherent of the philosophy that his health and well-being should be given him and in no way be a product of some of his own effort. He will have been ambulating for a long time with some fancy formed metal in his shoe and the muscles that should have been working will be quite atrophic. Yes, the main pumping mechanism, his calf muscles, in great part have ceased to function, save in a minimal amount. Instead this poor misinformed product of easy living should spend a great part of his waking hours walking correctly and doing exercises designed to re-introduce his calf muscles to the fact that they were not slung between two bones as padding or insulation but as an integral part of his locomotion and concomitantly as the pump element to carry away the waste material self-produced in carrying out their task. Is there any excuse to ever justify the use of an arch support? Of course, highheeled shoes are not for walking; they are for clumping. Women have varicose veins about three to one as compared with men—enough said.

In conclusion, to be certain that this subject is far from settled, it seems worth while to quote from Holman in the twenties: "Varicose veins and the attendant ulcers both may long continue to offer a fruitful field of surgical failure." In 1939 Freeman echoed with "The trail of varicose veins is laden with chagrin." It is true that routine operations will cure the average patient, but unusually careful treatment alone will secure the high proportion of good results which represents successful surgery.

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POLITICAL MEDICINE

In dedicating a new 40 million dollar government medical research center at Bethesda, Md., President Truman got in another plug for one of his pet state welfare projects, compulsory "national health insurance." He said that many people couldn't afford to buy insurance in one of the non-profit health insurance organizations.

These plans charge exactly what they need to meet their claims. It is not even argued that a government bureaucracy could do business cheaper than a private company.

It follows that if an individual can't afford a private health policy, he cannot afford to pay a government agency the true cost of his insurance. Mr. Truman knows this quite well. In essence, what he proposes is high taxes on some people to pay for those who contribute less than cost.

This is a wealth-sharing scheme, a system of political medicine under which medical care would be conducted with the same efficiency as the post office. It is a plan for new taxation, and to call it "insurance" is a fraud. —*Chicago Daily News,* July 19, 1951.

SURGICAL TREATMENT OF DISEASES OF THE HEART AND GREAT VESSELS

JOHN W. KIRKLIN, M.D.
Rochester, Minnesota

THE surgical treatment of diseases of the heart and great vessels is based upon a somewhat different concept than is that of many infectious and malignant lesions. In infectious and malignant diseases operation is done for the removal or destruction of tissues. The concept underlying the operative management of cardiovascular diseases, however, is that by certain procedures the circulation can be restored to a more nearly normal condition. Thus instead of being extirpative or destructive, these operations are reconstructive. They offer to the surgeon an unparalleled opportunity for performing good.

It is obviously impossible in a presentation of this type to speak in detail concerning this fascinating subject. I do hope, however, to indicate the scope of this field of surgical endeavor and to present a few of the results which can be obtained.

Although the roots of the surgical treatment of many maladies connected with the heart and great vessels go back a long time, there can be little doubt that the most important recent stimulus to the surgical attack upon heart disease was the successful closure of a patent ductus arteriosus by Gross of Boston in 1938.[15] Since that time rapid advances have been made, until today a great host of cardiovascular diseases and anomalies come to the attention of the surgeon.

Chronic constrictive pericarditis has been shown to be amenable to surgical treatment in the great majority of instances. Patent ductus arteriosus has already been mentioned as being a malformation which is ideally suited for surgical treatment, as is coarctation of the aorta. A certain number of lesions which produce symptoms by encirclement of the trachea and esophagus, the so-called vascular rings, are also amenable to surgical management. Certain complex malformations resulting in insufficient pulmonary blood flow and cyanosis, including the tetralogy of Fallot, are likewise subject to surgical management. Finally, certain lesions within the heart itself, notably pulmonic stenosis of the valvular type and mitral stenosis, are also now within the realm of the surgeon's endeavor.

The field is not a static one, however, because there are other lesions which, although not at present amenable to surgical treatment, no doubt will be at some future time. Atrial septal defects and ventricular septal defects are being investigated intensively, and I am confident these will soon come under the surgeon's care. Aortic stenosis has already been subjected to surgical treatment[1,13] and may well someday be included among those lesions which are favorably influenced by surgical measures. Still further congenital malformations and acquired cardiac lesions may be amenable to operative treatment before long. Certainly, experience indicates that no accurate predictions can be made as to the future limits of cardiac surgery.

Patent Ductus Arteriosus

Patent ductus arteriosus is a malformation which must be considered in some detail in any discussion of surgery of the heart and great vessels. This is so for two reasons. First, as mentioned, the first successful closure of the patent ductus arteriosus really stimulated a great deal of the present interest in cardiovascular surgery. Second, the operation for patent ductus arteriosus remains the most satisfactory operation in the entire field of cardiovascular surgery. This is so because a properly performed procedure for this malformation renders the patient virtually a normal individual in the great majority of instances.

The patent ductus arteriosus produces a shunting of blood from the aorta to the pulmonary artery, so that approximately 40 to 70 per cent of the blood flowing out into the aorta is passed into the pulmonary circulation. Obviously the physiologic disturbances resulting from this arteriovenous shunt are significant. There is a diminution in the peripheral systemic circulation, as a result of which some of these patients present severe stunting of growth. Congestive heart failure and subacute bacterial endarteritis or

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From the Division of Surgery, Mayo Clinic, Rochester, Minnesota.

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endocarditis may follow in the wake of this malformation. It has been shown[20] that the life expectancy of a patient with a patent ductus arteriosus is indeed limited, since the majority do not survive beyond the age of forty years.

Because of these factors there can be, in my opinion, little doubt that patients with patent ductus arteriosus should undergo operation. The criteria for the diagnosis of this lesion are well known. It should be stated, however, that approximately 5 per cent of patients with patent ductus arteriosus will present an atypical syndrome.[9] That is to say, these patients do not have the typical machinery murmur nor the other well-known stigmas of this lesion. In this small group of cases the accurate diagnosis of patent ductus arteriosus can be made only by cardiac catheterization studies.

Once the diagnosis of patent ductus arteriosus is made, the question arises as to the proper time for operation. Operation should, in general, be deferred until the child is approximately three years of age. However, if a small infant shows signs of progressive cardiac enlargement and heart failure, the operation must be undertaken at the time that this occurs regardless of the age of the patient.

The details of the operative technique are not of great concern today. It should be pointed out, however, that there is a difference of opinion as to whether the patent ductus arteriosus should be ligated or divided. Gross and Longino, Potts,[22] and others[26] are firmly of the opinion that these patients are best treated by complete surgical division of the patent ductus arteriosus. On the other hand, Blalock[2] has championed the multiple ligation technique for closure of the ductus; recently 161 cases of patent ductus arteriosus treated in his clinic by this technique have been reported[25] and in no cases has recanalization been known to recur. In the institution with which I am associated there exists this difference of opinion, some choosing to ligate the patent ductus arteriosus while others favor division of the patent ductus. The operative mortality with either technique is very low, in the region of 1 to 2 per cent. The end results are exceedingly gratifying since by the closure of this abnormal shunt the patient's cardiovascular physiology is returned to normal.

Thus we have for patent ductus arteriosus that for which all of us in surgery constantly strive but rarely achieve—a perfect operation.

Coarctation of the Aorta

Coarctation of the aorta is an abnormal constriction of the aorta, usually situated just distal to the origin of the left subclavian artery, which results in a blockage of the flow of blood through that portion of the aorta. As a result of this obstruction, the blood pressure rises in the upper portion of the body, intense collateral circulation develops between the upper and lower portions of the aorta, and the blood supply to the lower extremities is diminished. It has been shown by careful studies that the prognosis for patients with this malformation is indeed grave, since nearly all are dead by the age of forty to forty-five years.[24] As one might expect, the death in coarctation of the aorta occurs either as a direct result of the coarctation, that is, from the formation of an aneurysm in the region of the coarctation, with subsequent rupture of the aneurysm and sudden death; or it may occur as a result of the hypertension with intracranial hemorrhage or as a result of cardiac failure caused by the tremendous strain placed upon the left ventricle.

The investigations of Blalock and Park, the brilliant experimental work of Gross and Hufnagel, followed by Gross' application of the experimental findings to man with the performance of a successful operation,[14] and the pioneering work of Crafoord and Nylin in operating on patients with coarctation of the aorta are so well known as to preclude discussion of them. It is apparent that the proper surgical treatment for this malformation is excision of the coarctate site and end-to-end anastomosis of the aorta. I should like to summarize very briefly the experience with this operation at the Mayo Clinic in order that you may have some idea as to the efficacy of the procedure as well as of its relative safety.

In a series now numbering more than eighty cases,[10] the operative mortality rate has been approximately 8 per cent. There have been no deaths in the last fifty-five cases. In approximately 10 per cent the condition has proved at exploration to be inoperable, because of formation of an aneurysm near the coarctate site, because of excessive length of the strictured segment, or because of generalized hypoplasia of the aorta. One patient recently operated upon is interesting in that the condition was inoperable because of a dissecting aneurysm which actually developed during operation. The results of operation in a portion of this series have recently been published.[19] They found that

90 per cent of the patients had an excellent result, as judged by lowering of the blood pressure in the arms and elevation of the pressure in the femoral arteries.

Thus it is believed that operation is indicated for all persons with coarctation of the aorta, unless they are beyond the age limits set for surgical treatment. These age limits are not definite, but certainly the results are less favorable and the operation is more hazardous when the patient is over forty years of age, particularly if the patient is a male. It is probably wise to defer operation in a child until he has become about fourteen years of age, unless evidence of rapid cardiac enlargement appears. Should this supervene, operation is necessary without further delay, in order that heart failure may be prevented. For this reason, operation must be performed in infancy in occasional cases.

Vascular Rings

The so-called vascular rings are an interesting group of lesions, which may produce esophageal or tracheal obstruction or both. This obstruction results from an encirclement of or an encroachment upon the esophagus or trachea by certain anomalous vascular structures. Thus infants or children with this anomaly frequently present severe stridor and a history of recurrent "bronchitis." They may also have great difficulty in feeding. It is important that we be aware of these anomalies because they are amenable to surgical treatment.

The diagnosis can usually be made accurately by an experienced roentgenologist[21] through a study of the defects produced by these anomalous structures on the barium-filled esophagus.

Of the many types of vascular rings only three of the more interesting and important ones will be mentioned. The first is the so-called double aortic arch, in which the arch originates in the usual manner from the left ventricle but in its course upward into the mediastinum divides into a left and right aortic arch. These arches, after encircling the trachea and esophagus, join so as to form a single descending aorta. This produces a very tight vascular ring around the trachea and esophagus. Fortunately it is possible surgically to divide one of these two arches. An attempt is always made to divide the smaller of the two, in most instances this being the anterior arch. The division of this arch obviously breaks the vascular ring. A most dramatic result can be obtained in an infant with this anomaly by a properly performed surgical procedure.

A second interesting anomaly producing a vascular ring is that in which there is a right aortic arch and a right-sided descending aorta but in which the ductus arteriosus originates from the left side and passes behind the trachea and esophagus to join the aortic arch on the right. Obviously this likewise produces obstruction of the trachea and esophagus, primarily the esophagus. It is apparent that division of the ductus arteriosus breaks the vascular ring and relieves the obstruction.

The third condition is that of the anomalous right subclavian artery. In this condition the right subclavian artery, instead of originating as usual from the innominate artery, originates as the fourth branch of an otherwise normal aortic arch. Having arisen thus on the left side, it passes to the right behind the esophagus and may encroach upon the lumen of the esophagus to such an extent that true esophageal obstruction is produced. This condition was described many years ago by the term "dysphagia lusoria"; in other words, dysphagia produced by a "freak of nature." Posterolateral thoracotomy on the left enables the surgeon to dissect out the anomalous right subclavian artery and to divide this structure, thereby relieving the pressure upon the esophagus. Experience shows that this can be done safely without compromise of the vascular supply to the right arm.

I cannot refrain from pointing out that again surgeons are deeply indebted to Gross[18] for his pioneering efforts in the treatment of these anomalies. My colleagues and I, as well as others, have followed in his footsteps in the treatment of these conditions, and have obtained exceedingly gratifying results.

The Tetralogy of Fallot and Related Malformations

The tetralogy of Fallot is probably the commonest cause of "blue babies." This is the combination of pulmonic stenosis, interventricular septal defect, biventricular origin of the aorta, and right ventricular hypertrophy. This malformation results in insufficient pulmonary blood flow, and in the delivery of mixed venous and arterial blood into the aorta, rendering the patient cyanotic.

The brilliant contribution of Blalock[6] in the treatment of the tetralogy must forever assure him a prominent place in the history of surgery in the twentieth century. He demonstrated that blood can be shunted from the aorta into the pulmonary artery by means of an anastomosis between the subclavian artery and one of the pulmonary arteries, and that this shunting of blood relieves cyanosis and markedly improves the exercise tolerance of these patients. He has reported a series of 610 such operations.[3] Potts has utilized a modification of this operation in which the shunt is established by a side-to-side anastomosis of the upper part of the descending aorta with the left pulmonary artery.[23]

Our own experience at the Mayo Clinic has convinced us too of the real efficacy of these procedures. I shall not discuss techniques or results in detail, but should like to point out that we now have available for certain cases of the tetralogy of Fallot an operation which may be superior to the shunt operation, namely, the direct operation upon the pulmonic valve. In my opinion, this operation is indicated only in those cases of the tetralogy of Fallot in which the obstruction to the pulmonary blood flow is on the basis of a valvular pulmonic stenosis. This situation pertains in only about 20 per cent of cases. In the remaining 80 per cent, the obstruction is primarily in the outflow tract of the right ventricle, constituting so-called infundibular stenosis. I do not believe that the direct operation is advisable in these cases, at the present time.

The belief that the direct operation is preferable to the shunt operation in cases of the tetralogy of Fallot makes it mandatory that exploration be carried out in these cases through the left side of the chest. The pericardium is opened routinely, so that it may be determined by certain criteria whether the pulmonic stenosis is a valvular or infundibular one. If it is valvular, a direct operation is done upon the stenotic pulmonic valve, approaching it through the right ventricle. If the obstruction is infundibular, an aortic-pulmonic anastomosis, or an anastomosis of the left subclavian artery with the left pulmonary artery is effected.

Valvular Pulmonic Stenosis With Closed Ventricular Septum

Valvular pulmonic stenosis with closed ventricular septum, the so-called isolated pulmonic stenosis, is a distinct clinical entity, which should be sharply separated from the tetralogy of Fallot.[12] The pulmonic stenosis may be the only cardiac defect, or there may be an associated atrial septal defect. These patients have real disability from this malformation in many instances. There may be stunting of growth, severe exercise intolerance and, in cases in which there is an associated atrial septal defect, cyanosis.

As a result of the pioneering efforts of Brock,[7] in England, there is now a very satisfactory operation for valvular pulmonic stenosis. This is the direct operation on the pulmonic valve, which is the same operation, earlier mentioned, that we use in those cases of the tetralogy of Fallot with valvular pulmonic stenosis.

Careful evaluation of the condition of the patient suspected of having so-called isolated pulmonic stenosis is mandatory. In our institution, these patients are meticulously studied by the pediatricians and cardiologists. Cardiac catheterization is carried out, under the direction of Dr. Earl Wood, both preoperatively and postoperatively, and is of the greatest assistance.

We do not consider that the mere diagnosis of valvular pulmonic stenosis is an indication for operation. Of course, if the patient with this malformation is having symptoms, operation is indicated. Even in the absence of symptoms, operation is probably indicated in cases in which the right ventricular systolic pressure is in excess of 50 to 60 mm. of mercury, as measured by cardiac catheterization.

Exposure for this operation is obtained through a left anterolateral approach. The pericardium is opened. The right ventricle is hypertrophied, the sinuses of Valsalva are not present, and the proximal portion of the pulmonary artery is diffusely dilated. Most important, a very forceful but fine jet of blood can be felt squirting into the pulmonary artery through the very stenotic pulmonic valve. A transverse incision is made into the right ventricle and a special cutting knife is passed into the ventricle and through the pulmonary valve into the pulmonary artery. This is followed by a large dilator so as to insure an adequate opening. The ventricular wound is then closed carefully with interrupted silk sutures.

Excellent results, both in the state of the circulation as measured by cardiac catheterization and in the patient's exercise tolerance and general well-being, can be obtained by the operation. Despite the fact that intracardiac manipulations are involved, the operative mortality has been very low, both in our hands and in the larger series reported by Brock and Campbell, and Blalock and Kieffer.

Mitral Stenosis

The last cardiac lesion which I wish to discuss is mitral stenosis. The ramifications of the subject of the surgical treatment of mitral stenosis are so numerous and so varied that it is impossible to discuss the subject adequately in a presentation of this type. It may be of some value, however, to indicate in a general way the accomplishments of the operation and the indications for it as well as the results obtained by it.

The fundamental lesion in mitral stenosis is a deformity of the mitral valve, resulting in a reduction in the size of the valve opening during ventricular diastole. The exact nature of the deformity varies from case to case, but in the majority of cases there is a thickening of the tissues at the medial and lateral commissures, and frequently an actual fusion of the anterior and posterior leaflets in these regions results in a marked lengthening of the original commissures.

The operation which my colleagues and I have employed for mitral stenosis is that of mitral commissurotomy. Bailey and his colleagues originally noted that if one cuts accurately into the medial and lateral commissures one can markedly enlarge the valvular orifice while preserving valvular function. Our experience has borne out their concepts, and I am now completely satisfied that one can, in the great majority of cases, open up the orifice of the valve by mitral commissurotomy without producing mitral regurgitation.

This point is worthy of emphasis, for it is too firmly rooted in the minds of many that mitral regurgitation always results from operations on the mitral valve. This is not the situation. True, mitral regurgitation occurs if one of the valve cusps is cut, instead of the commissures. However, if the commissures are accurately attacked, mitral regurgitation does not occur. This can be judged very well at the time of operation with the finger in the left atrium. The valve can be felt during its opening and closing, and any blood regurgitating back through the valve during ventricular systole is readily appreciated.

The operation is carried out through a left posterolateral incision. The right index finger is inserted into the left atrium, entering this chamber through the tip of the left atrial appendage. A special cutting instrument is carried in on the index finger. Note is made of the valvular orifice, the nature of the valvular lesion producing the mitral stenosis, and of the presence or absence of an associated mitral regurgitation. This latter is relatively uncommon as a concomitant of mitral stenosis, judging from our experience. The landmarks allowing accurate identification of the commissures are then sought, this being an extremely important portion of the procedure. The cutting instrument is then brought precisely to the lateral commissure, and the commissure is incised out to the valve ring. The result is then assessed. In certain cases it is desirable to cut similarly into the medial commissure, although this is not always done. After withdrawal of the finger, the major portion of the left atrial appendage is removed, and the base is closed with interrupted silk sutures.

Before mention is made of the indications for and the results of operation, it should be emphasized that the surgical treatment of mitral stenosis, as of other cardiovascular lesions, is an enterprise which in our institution requires the utmost in co-operation between the various individuals involved. We are completely dependent upon our cardiologists for the preoperative evaluation of the condition of these patients. Their great care in arriving at the diagnosis and their constant and complete co-operation in preoperative and postoperative management have been indispensable to us at the Mayo Clinic. Dr. Earl Wood has supervised the cardiac catheterization in all the patients we have operated upon, and his analysis and interpretation of these data are of tremendous assistance to us. Operations of this type are obviously impossible without the help and co-operation of an experienced anesthesiologist. Dr. J. W. Pender has been in charge of the anesthesia and supportive care during operation in our cases, and this has been one of the extremely important factors which have allowed us to do these operations safely.

It is my opinion that patients with mitral stenosis who are having moderate or severe symptoms should be considered as possible candidates for operation, for I believe on the basis of our experience to date that these people are definitely, and occasionally dramatically, improved by operation. Probably the only rigid contraindication to operation is the presence of active rheumatic fever. However, the presence of associated valvular lesions, of uncontrolled cardiac failure, and of uncontrolled ventricular tachycardia, render operation more hazardous and less certain of producing a good result, although they do not definitely contraindicate it in all cases.

The results of operation have been gratifying. We have become convinced that mitral valvulotomy is an important part of the therapeutic armamentarium for mitral stenosis.

Summary

It has been pointed out that a number of lesions of the heart and great vessels are now best treated surgically. These include chronic constrictive pericarditis, patent ductus arteriosus, coarctation of the aorta, vascular rings, the tetralogy of Fallot and related conditions, pulmonic stenosis with intact ventricular septum, and mitral senosis. The surgical techniques are being constantly improved for each of these conditions, a circumstance which allows the production of more nearly perfect anatomic and physiologic results with an ever decreasing operative mortality. New lesions, such as atrial and ventricular septal defects, aortic stenosis, and others, await only further perfection of methods before they too can be counted among those diseases of the heart and great vessels which are successfully treated by operation. This remarkable field of surgery has become one of the most satisfying to the surgeon, because he is so often rewarded by an excellent result. It has also made those of us engaged in it very humble, for I believe we all realize that these fine accomplishments are possible only with the complete and intimate co-operation of our colleagues in cardiology, radiology, physiology, and anesthesiology.

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VERTIGO

HENRY L. WILLIAMS, M.D.
Rochester, Minnesota

THE symptoms, "vertigo," "dizziness," "blackout," "unsteadiness," "drunkenness," "imbalance" and the like, are among the most frequent met with in medicine. The potential differential diagnostic value of these symptoms seems not to have been realized because of a lack of clarity in the mind of the examining physician as to the exact meaning of these individual terms. The tendency to consider them as synonyms has risen to the detriment of diagnosis.

While the difficulties of obtaining an exact description of symptoms from a reluctant and confused patient may be great, if these terms are clearly defined in the physician's mind, the rewarding information will often compensate fully for the effort expended.

Vertigo, dizziness and the rest are subjective sensations not amenable to observation or measurement. It is well known that a subjective sensation can be described only in terms of an experience common to the interested individuals. Probably because of the time consumed in finding an exact common experience it has been found easier to let "vertigo" go as a synonym for such terms as "dizziness," "giddiness" and the like. McNally and co-workers,[12] for instance, felt that because patients used these terms indifferently in describing the sensation produced by caloric testing of labyrinthine function, and because "dizzy" and "vertigo" were both derived from words that meant whirling or turning, a distinction between these two words is uncalled for. He would appear to be in error as to his second statement, for the Oxford dictionary derives "dizzy" from the old English word "dysig," meaning foolish or stupid. "Dizzy" is still used in this sense by the vulgar of this country, usually as a qualification of hair coloration, although the Oxford dictionary reports that this use has not been general in England since the thirteenth century. Vertigo, however, is derived from the Latin word for turning. In medical discussions of vertigo, while it is of great importance that the physician should have a clear understanding of the meaning of the word used, the state of confusion of the laity in regard to the matter should be of minor concern.

Weiss stated that because patients describe vertigo or dizziness indiscriminately as "swimming," "reeling," "giddiness," "lightheadedness," "faintness," "drunk feeling," or a sense of "foolishness," the first step in the treatment of vertigo or dizziness is the proper interpretation of the patient's complaints. Without this, effective treatment, he stated, is not possible. Weiss defined vertigo in the strict sense as an experience in which the patient has the sensation that the outer world is moving about him (objective vertigo, eyes open) or that he himself is whirling in space (subjective vertigo, eyes closed). Frequently, however, the term "vertigo" is used erroneously as a synonym for dizziness or giddiness to indicate a disturbed relationship to surrounding objects in space. The terms, "dizziness" and "giddiness," Weiss felt, should be restricted to an abnormal sensation of unsteadiness characterized by a feeling of movement within the head, without the sensation of the external world or the patient himself being in motion.

Dizziness or giddiness as a subjective sensation should not be confused, on the other hand, with the sensation of unsteadiness associated with ataxia. At times true vertigo and dizziness can co-exist.

According to McNally,[11] the labyrinth is so designed that it is stimulated by any movement of the head in space. The resulting reactions are compensatory and are intended to return the body, head and eyes to their original position. As Tait put it, it is one of the marvels of our organization that the three pairs of canals working in association with the four straight and two oblique muscles of the eye, present us (or any vertebrate) with an adequate view of the surroundings even though the pedestal or support of the registering camera be temporarily rocking or swinging.

McNally expressed the belief that, if the labyrinth is stimulated by anything other than an active movement of the head, the central nervous system does not differentiate between this and a

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From the Section on Otolaryngology and Rhinology, Mayo Clinic, Rochester, Minnesota.

true movement of the head, with the result that the stereotyped set of reactions is called forth to meet an emergency that has not arisen. A message goes through to the central nervous system that the head has moved, but the eyes and bodily sensations inform the central nervous system that the head has not moved, and it is these contradictory messages which result in the sensation of vertigo.

Nickle gave a somewhat similar description of the origin of vertigo but allowed for the separate sensations of dizziness and unsteadiness. He stated that under normal conditions the interlocking control mechanism of the vestibular connections which is represented most often bilaterally is so poised that there is compensation for all movements and changes of position of the body. If incoördination of any part of this system with the system as a whole occurs, conflicting impressions are transmitted which the higher reflex centers cannot co-ordinate. The resulting confusion then results in vertigo, dizziness or unsteadiness. True vertigo appears to arise from disturbances of the vestibular end organ, the vestibular nuclei or possibly from the central connections. Dizziness and unsteadiness (incoördination) may arise from disturbance of the proprioceptive, exteroceptive or central portions of the mechanism. Stimulation of the labyrinthine end organs seems to produce a much more marked and vivid subjective impression of angular acceleration about an axis or linear acceleration than irritation arising in the vestibular nuclei. The most important difference, according to Alpers, between vertigo due to labyrinthine involvement and lesions of the brain stem, lies in the clear-cut nature of vertigo associated with peripheral disease. He stated that in vertigo associated with central lesions, patients find it difficult even with help to describe precisely the nature of the sensation they experience. Patients with labyrinthine vertigo have no such difficulty. However, experience has taught that McNally's warning that labyrinthine stimulation does not always produce a sensation of turning is correct. It would seem best to state that mild disturbances producing stimulation of the labyrinthine end organ do not always produce a clear-cut sensation of turning, although this seems to be the rule.

Central vertigo (often mere dizziness) may begin when the patient is at rest and is independent of movement. This distinguishes central dizziness or vertigo from those sensations produced by disturbances of the proprioceptive and exteroceptive correlations other than those caused by stimulation of the end organ. It seems doubtful whether true subjective or objective vertigo occurs other than exceptionally from stimulation above the vestibular nuclei, although it has been reported. These reports seem to depend in the main on confusion as to the definition of vertigo. Foerster, however, observed that stimulation of the superior lip of the interparietal sulcus evokes violent vertigo. The patient either sees the objects before him moving toward the side of the stimulation or has the sensation of turning toward the opposite side. This description of Foerster's would seem to indicate that nystagmus was present with this vertigo.

In spite of the fact that in most cases of end organ irritation the vertigo is of the obvious peripheral type, patients will be seen either in whom end organ stimulation does not produce true rotatory vertigo, or who are unable to give a description of the sensation they have experienced or who have a sensation much less vivid than the average. This fact was recognized by Ménière[13-15] in his papers describing the disease that has come to be known by his name. He described four types of vertigo or dizziness that are present in the crisis or attack and one type that is present between attacks. First, he said, the patient may have a true rotatory vertigo coming on without warning and tending toward remission and recurrence. The patient who has this type of vertigo, on opening the eyes while lying in bed will see the room whirling around him, and attempts to move will produce violent nausea and vomiting. Second, he described a condition in which the patient both feels and is unsteady. On attempting to walk he may veer to one side or the other and bump into a stone wall or a tree. Third, the patient may experience the sensation of an up-and-down or to-and-fro motion. One of Ménière's patients described his sensation as that of "being on the bridge of a ship at the mercy of a stormy sea." Fourth, the patient without previous warning may be thrown violently to the ground as though struck on the head, and afterward while lying down experience violent vertigo, nausea and vomiting.

Shambaugh pointed out, as did Lermoyez later, that the anatomic distribution of the blood supply to the cristae and macula is such that vasospasm could shut off the blood supply to these nerve centers independently. Since it has been demonstrated that the stimulus to the cristae ampullares is angular acceleration about an axis and, to the macula utriculi, that of linear acceleration or slow tilt, it is felt that anoxemic stimulation of these centers would give in the case of the cristae a sensation of turning or vertigo, and in the case of the macula the sudden fall and the up-and-down sensation. This hypothesis has received acceptance from Wright, Tumarkin and lately Hilger. Lermoyez pointed out that vasospasm might be of long duration and that sudden release of vasospasm would constitute as violent a stimulus as its sudden onset. He therefore explained sudden relief of long-continued symptoms of dizziness and unsteadiness following an attack of vertigo on the basis of sudden re-establishment of autonomic balance following a prolonged period of cholinergic preponderance with vasospasm.

Ménière[13-15] also stated that the patient with the disease that now bears his name, between crises of the disorder, is unable to turn the head suddenly, or lie down in or get up from bed without experiencing some degree of either vertigo or dizziness, although rarely to a severe degree. He also described a "syncopal state" with pallor, cold sweat, feeble pulse and nausea as being associated with the severe attacks or crises. Lindsay has considered the first of these conditions under the heading of positional vertigo and pseudo-Ménière's disease. He pointed out that they apparently indicated a hyperirritable state of the labyrinth and that they would often progress into true Ménière's disease, indicating a similar basic physiologic mechanism.

The pallor, nausea and vomiting are usually explained by the close anatomic relationship of the vestibular and vagus nuclei.

Relationship of Vertigo and Nystagmus

If vertigo is defined in the strict sense indicated in the definition of Weiss, the relationship between the sign of nystagmus and the symptom of vertigo is very close. Brunner, for instance, stated that nystagmus of the third degree is always present with vertigo of any severity. Kobrak has raised the question as to whether or not vertigo and nystagmus are parallel phenomena, both being independently produced by the same stimulus, or whether vertigo is secondary to central stimulation produced by the nystagmus. In his opinion the latter is true.

Best and Taylor pointed out that the nystagmus produced by labyrinthine stimulation differs from the vertigo produced in regard to its relation to the plane of the canal stimulated, whereas vertigo after cristal stimulation may vary in its direction, depending on changes in the position of the head. The reason for this difference is that whereas nystagmus is reflexive, the sensations of vertigo are largely the result of cerebral interpretation of movement of endolymph, and the position of the head at the moment is taken into account. This indicates that there is very little of diagnostic value in ascertaining the direction of vertigo. This finding, however, seems to support the opinion of Kobrak that vertigo is secondary to central stimulation produced by the nystagmus, the labyrinthine message conflicting with the information being relayed from other proprioceptors and exteroceptors. According to Leidler, however, there may be dissociation of vertigo and other vestibular symptoms in cases of nonsuppurative encephalitis.

The sensations of giddiness, dizziness, unsteadiness and the like, on the other hand, are not associated with nystagmus. McNally[11] found that there was no evidence that the saccule subserved an equilibrial function, and he demonstrated that utricular stimulation did not produce nystagmus. With the exception of the rare instances of utricular stimulation, irritation of the vestibular system, under which is included the labyrinth, the vestibular nerve, the vestibular nuclei and their central connections, results in rotatory vertigo and is associated with nystagmus. The important difference between vertigo due to involvement of the end organ and that due to stimulation of the vestibular nuclei and higher centers lies in the usual clear-cut nature of the vertigo associated with peripheral disease. In vertigo associated with central lesions patients may find it difficult even with help to define precisely the nature of their sensation. Patients with labyrinthine vertigo have no such difficulty.

Unsteadiness is apt to arise from irritation of the equilibrial mechanism other than the vestibular system. The equilibrial difficulties associated with walking in the dark experienced by individuals who have lost either their tendon and joint sense or their vestibular mechanism on both sides are due to the blindfolding effect of darkness on the optical righting reflexes present in higher mammals. Man depends on (1) the ocular, (2) the labyrinthine and (3) the tactile and kinesthetic reflexes in maintaining normal posture. In man with closed eyes, if either the utricular or somesthetic reflex is gone, the remaining reflex is not sufficient to maintain posture. Dizziness and drunkenness on the other hand are seen in association with syncope and intoxications.

It would seem, therefore, that most of the confusion in regard to the symptom of vertigo has resulted from neglect of proper definition of the terms used. If the differences between "vertigo," "dizziness," "foolish feeling," "confused feeling," "dimming out," "unsteadiness" and the like are kept well in mind and sufficient effort expended to obtain from the patient a description indicating which one of these sensations he is experiencing, no matter what the word he has selected as its name, a forward stride may be taken in the understanding of the problem presented. The examiner should never be satisfied with a single descriptive term. The patient is sure to be confused as to its meaning; the examining physician on the other hand ought not to be.

Disorders in Which Rotatory Vertigo Is Present

Vertigo From Disorders of Function (Transitory and Reversible).—(1) Vertigo due to cerumen in the external auditory canal. (2) Vertigo due to tubal occlusion. Such occlusion usually produces a sensation of unsteadiness or dizziness, but in occasional instances true rotatory vertigo is produced. (3) Positional vertigo. This is a transitory vertigo produced by sudden motion of the head or body such as turning over in bed. (4) Ménière's disease. This is a transitory vertigo with a tendency to recur, and usually is of great severity with associated nausea, vomiting, syncopal state and cochlear symptoms. It is due to labyrinthine ischemia produced by arteriolar spasm and is usually associated with endolymphatic hydrops. As a rule it responds readily to simple medical treatment but occasionally may require surgical intervention.

These first four causes of vertigo suggest a hyperirritable condition of the labyrinth associated with autonomic dysfunction, arteriosclerosis, hypotension, or a combination of all three.

Vertigo Associated with Vascular Accident (Thrombosis).—Thrombosis or embolism of the branches of the posterior inferior cerebellar artery or of the internal auditory artery supplying the labyrinth and the vestibular nuclei has been mistaken for an initial attack of Ménière's disease. In thrombosis or embolism, however, a severe initial attack of vertigo occurs which is followed by slow recovery and no recurrence. Recovery may take several months, as opposed to the hours or days for recovery from an attack of Ménière's disease.

According to Woltman, the commonest disorder that we see that has a degree of vertigo comparable in intensity to that of the vertiginous crises of Ménière's disease is the onset of thrombosis of a posteroinferior cerebellar artery. With this generally go dysphagia, a sensory disturbance of the face and often an impairment in appreciation of pain and temperature in the opposite side of the body.

Vertigo Associated With Infections of the Ear.—If an infection of the middle ear invades the labyrinth through preformed pathways or erosion of a bony semicircular canal, irritation of the cristae may result with transient attacks of vertigo. If cholesteatoma in the mastoid with fistula in the canal wall with intact drum is present, the identification of chronic aural suppuration is not always easy. A history of otitic suppuration and a positive result with the fistula test are usually obtainable.

Skeletal Deformities Producing Vertigo.—Platybasia or basilar impression usually secondary to Paget's disease of the skull is an infrequent cause of vertigo associated with deafness. A roentgenogram of the skull is usually sufficient to establish the diagnosis.

Vertigo Produced by Trauma of the Head.—Since vertigo from injury of the head seems to depend on petechial hemorrhages in the region of the vestibular nuclei, the vertigo is likely to be severe and difficult to differentiate by history from that produced by end organ irritation. This type of vertigo tends to come in recurring attacks. Often injury to the auditory apparatus is associated with severe injuries to the head, so the presence or absence of loss of hearing may not prove to be a valuable distinguishing feature. Grove stated that all patients with severe injury of the head and subsequent somatic, not psychogenic, vertiginous attacks will always be found to have occasional attacks of nystagmus accompanying them.

Toxic Vertigo.—Toxins from focal infections in the teeth, tonsils or sinuses, or the toxic effects of certain substances such as quinine, tobacco, the salicylates and the sulfonamides are said to cause episodic attacks of vertigo. This is a matter in which it is difficult to produce definite proof. It is occasionally observed in the clinic that removal of infected tonsils or teeth and the like will be rapidly followed by the disappearance of vertigo. Stopping the use of tobacco and certain drugs, especially quinine and the salicylates, will also produce a similar apparent improvement. Such vertigo may represent a type of specific sensitivity which is obvious when the vertigo is associated with the ingestion of a certain food or drug.

Vertiginous Epilepsy.—In vertiginous epilepsy, an unusual disorder, the attack may seem typical of positional vertigo or pseudo-Ménière's disease. The most important differential point is the period of sleepiness following the attack. If sleepiness is found in the history, an electroencephalogram should be taken.

Migraine With Vertigo.—It has been suggested that the differentiation of vertiginous migraine from Ménière's disease is an important one. It would appear from the evidence, however, that Ménière's disease and migraine are closely related vascular syndromes. The association of headache with Ménière's disease has been frequently pointed out. Emotional factors are often prominent in promoting both conditions, and similar therapeutic agents have often been found effective in both conditions. Therefore this differentiation appears to be of less than major importance.

Psychogenic Vertigo (Vertigo Associated With Anxiety Hysteria or Conversion Neurosis).—Patients who are under severe anxiety and tension, termed by Cannon "the minor aspects of fear," readily transfer their subjective feelings of insecurity into the sensation of vertigo, dizziness or unsteadiness. Such patients who have a foundation of previous attacks of true rotatory vertigo on which to build their story are particularly difficult to differentiate. Indeed the vertigo itself may be the cause of the feeling of insecurity and anxiety, and some degree of psychogenic vertigo usually accompanies Ménière's disease of long standing. It may be difficult to tell from the patient's story whether a recent attack of vertigo was due to a functional derangement of the peripheral vascular bed or was psychogenic in origin. An important factor in the treatment of a patient with recurring attacks of vertigo may be treatment of the secondarily induced anxiety state by discussion, explanation and relaxing psychiatric and physical therapy.

Vertigo Associated With Intracranial Disease (Bruns' Syndrome).—Woltman has found Bruns' syndrome most difficult to differentiate from Ménière's disease on occasion. Bruns originally described episodic attacks of nausea, vomiting and headache associated with cysticercosis of the fourth ventricle. According to Obrador, cysts in the ventricular system are most frequently observed in the fourth ventricle, more rarely in the lateral and third ventricles, and may be isolated or multiple. Sessile tumors of the ventricles have also come to be included under Bruns' syndrome. Fairly typical features of these mobile cysts are the intermittence of the symptoms and the fact that they are associated with or accompanied by severe headaches which begin with or are exaggerated by postural changes. Other symptoms are vomiting, diplopia, loss of vision, vertigo, disturbance of consciousness with incoherent and difficult speech, bilateral papilledema, hypotonia of limbs and ataxia.

Vertigo in Multiple Sclerosis.—Alpers stated that recurring vertigo is an initial symptom in 10 per cent of the cases of multiple sclerosis. This vertigo is often associated with nystagmus, with pallor of the temporal sides of the optic disks and with absence of abdominal reflexes.

Because the lesions causing these symptoms in multiple sclerosis were in the vestibular nuclei or their pathways, and because the symptoms of ventricular cysts were produced by pressure on these same structures, Alpers and Yaskin proposed that all vertiginous symptoms produced by diseases or tumors affecting these structures be classified under the title of Bruns' syndrome. When "Bruns' syndrome" is not caused by a tumor, as for instance in multiple sclerosis, these authors felt that not all the characteristic features are present.

Tumors of the Cerebellopontine Angle.—Tumors of the cerebellopontine angle such as meningiomas appear to be more likely to produce attacks of recurring vertigo than are schwannomas of the eighth cranial nerve. These lesions may be differentiated from Ménière's disease most readily by hearing tests, especially by tests for discrimination of spoken words. In addition, spontaneous nystagmus is often associated with these tumors but is absent in Ménière's disease except immediately following a crisis of the disorder.

Disorders in Which Dizziness of Syncope May Be Present

Carotid Sinus Syndrome.—This condition is a form of syncope dependent on a rather sudden ischemic state of the arterial system. In the classic case of syncope, unconsciousness is at times associated with mild clonic convulsions. If, however, the ischemic state of the central nervous system is mild, lightheadedness, weakness, dizziness, scintillating scotomas, dimness of vision, unsteadiness and nausea and vomiting may be the incomplete forms. These manifestations are produced by variations of pressure within the carotid sinus. Because in instances of hyperactive carotid sinus reflex, minor stimuli, such as from a tight collar, may be sufficient to produce the syndrome, the attacks are episodic in nature and are readily confused by some patients with attacks of vertigo.

Dizziness With Neurocirculatory Asthenia.—A train of symptoms almost identical with those enumerated just above is produced in some individuals by suddenly sitting or standing up after lying down for a considerable period. This appears to be due to lack of vasomotor compensation for the demand for increased vascular tonus produced by the sudden change of position. These attacks may also be confused by patients with attacks of true rotatory vertigo, especially if the word "dizziness" is selected as a synonym for both.

Summary and Conclusions

Lack of differential definition between the terms "vertigo," "dizziness" and several other terms which are incorrectly used as synonyms has resulted in the failure of these symptoms to constitute the valuable differential tool they might become. Proper definition of vertigo as a sense of whirling of the outside world or of the entire individual allows the term to be restricted to sensations arising from the vestibular system, comprised by the end organ, the vestibular nuclei and their central connections.

The term "dizziness," confined to a sense of motion within the head with a dimming of visual and auditory sensation, can be assigned to those symptoms arising from temporary cerebral ischemia, and both vertigo and dizziness can be differentiated from the sensation of unsteadiness produced by incoördination resulting from suppression or irritation of extralabyrinthine equilibrial reflexes. The examiner should never be satisfied with a monoverbal reply but should endeavor to get a clear mental picture of the sensation felt by the patient, because the laity are universally confused as to the meaning of these terms. If this is done, a useful diagnostic tool is secured.

Conditions in which vertigo and dizziness are prominent symptoms are briefly reviewed.

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PHARYNGEAL INFECTION COMPLICATED BY EROSION OF THE INTERNAL JUGULAR VEIN

F. G. FOLKEN, M.D.
Albert Lea, Minnesota

SEVERE or fatal hemorrhages following pharyngeal infections are the direct result of severe infection and suppuration in the parapharyngeal space. They are an end result of a suppurative adenitis involving the lymph nodes in the upper retropharyngeal space. These may be secondarily infected from any of the areas from which they receive their afferent lymph flow but most frequently follow acute pharyngitis, tonsillar or peritonsillar inflammation. The infection may also be carried by the blood through thrombosed veins from the tonsillar plexus or may result from direct continuity of tissue. The invading organisms usually belong to the streptococci group but may be others commonly found in the mouth. A severe infection develops in the retropharyngeal spaces with possible secondary involvement and erosion of a blood vessel by direct extension of infection, there being a very close anatomical relationship between the common and internal carotid arteries, the internal jugular vein and the extensive lymphatic system in the retropharyngeal space.

A knowledge of the anatomy of the parapharyngeal space is essential for a good understanding of this condition. It extends from the base of the skull above to the posterior mediastinum below and lies between the pharynx anteriorly and the vertebral column posteriorly. The deep cervical fascia bounds it anteriorly and posteriorly, blending with the sheaths of the great vessels laterally. Processes from its under surface divide the space into compartments and limit the spread of pus. The most important of these is the central or visceral, which extends from the base of the skull to the posterior mediastinum behind and from the hyoid bone to the superior mediastinum in front. It is bounded anteriorly by the pretracheal fascia, posteriorly by the prevertebral fascia and laterally by the fascia containing the blood vessels. This compartment contains connective tissue and fat, the ninth to twelfth nerves, the sympathetic nerves, the common and internal carotid arteries, the internal jugular vein and numerous lymphatics and lymph nodes. Some glands lie close to the internal carotid artery where it enters the carotid canal. Others lie along the internal jugular vein and at its junction with the common facial vein. Lymphatic vessels pass from the tonsils and throat to these deep cervical glands.

Schroder[13] divides parapharyngeal suppurations into two main groups, anterior and posterior. The latter is further subdivided into a posterior superior and a posterior inferior. Pus from the anterior and posterior superior groups cannot pass down to the mediastinum, but posterior inferior suppurations only originate from the lymphatic glands along the jugular vein and may pass down along the sheath of the vessels of the neck to the mediastinum. Both lymphatic vessels and glands may be involved.

Either pharyngitis or tonsillitis may cause suppuration in the adjacent tissues with resultant retropharyngeal or peritonsillar abscess. The internal carotid artery lies much closer to the pharyngeal wall than the external and is therefore much more frequently involved. Retropharyngeal abscesses may vary in size from an almond to a walnut, may gravitate deeply into the hypopharynx, or may rarely cause death by necrosis and erosion of the carotid artery or internal jugular vein. A peritonsillar abscess may cause at least three forms of infection. A septic thrombophlebitis in the internal jugular vein may start in the peritonsillar connective tissue and the venous plexus of the tonsillar bed. It may also follow inflammation of the lymphatic glands on the wall of the vein or inflammation and suppuration of the glands along the jugular vein may be carried by lymphatics passing from the tonsillar bed to the glands. It is generally believed that the encasing fascial sheath protects blood vessels from adjacent infection. The protective mechanism of arteries and veins differs however. When an artery is involved, the vessel wall is so damaged by the infection that its protective coat is weakened and becomes slowly distended. It may directly perforate or a pseudoaneurysm may form and suddenly rupture, causing serious or fatal hemorrhage. An infection eroding through the wall of a vein, however, may cause thrombosis within its lumen, the venous walls being strengthened by a fibrinous deposit. While the venous wall may be eroded, hemorrhage will not usually occur if thrombosis has preceded the perforation.

Symptoms vary considerably. The patient may or may not be very septic and weak from the beginning, but any soft, smooth fluctuant swelling presenting in the lateral pharynx or at an angle of the jaw where pulsation is present must be considered suspicious as these indicate beginning leakage of blood and may precede sudden diffuse hemorrhage from the ear. A needle puncture may be a valuable help in diagnosis, but a negative puncture does not necessarily exclude aneurysm as the sac may be lined with heavy coaguli. Several minor pharyngeal hemorrhages may be followed by a serious or single fatal hemorrhage. Spontaneous hemorrhage from the tonsillar or pharyngeal areas is always a serious complication in cases having suppurative processes in those areas. Several hemorrhages may occur at intervals or a single large and immediately fatal hemorrhage. These patients do not cough up blood when they have a severe carotid hemorrhage, but bright red blood is projected from the mouth with great force. Erosion of the internal carotid artery has caused the hemorrhage in 70 per cent of cases. Mueller's observation[8] indicated that arterial hemorrhage is more frequent in adults, and venous in children. Salinger and Pearlman[12] reported that erosion of the internal jugular vein was found in fourteen of seventy-one autopsies of patients who died from hemorrhage following retropharyngeal abscess.

Abscess in the retropharyngeal space is usually readily diagnosed, especially in acute cases in adults. Roentgenograms are especially valuable but should be taken during inspiration in order that there may be air in the pharynx as well as the larynx and trachea with resulting better image.[7] Gradual but marked increase of swelling in the neck develops if erosion of a large vessel with escape of blood occurs. The blood may form a mass on the lateral wall of the pharynx, simulating a peritonsillar abscess. It may extend toward the base of the tongue and is frequently diagnosed as a peritonsillar or lateral pharyngeal abscess and incised. If only a variable amount of dark blood escapes, vascular damage is indicated. Trismus is characteristic of a peritonsillar abscess, but pharyngomaxillary involvement must be assumed if the abscess is incised and the trismus not relieved. Aural hemorrhage associated with pharyngomaxillary infection indicates carotid involvement. Pus deep in the neck may also be formed in association with hemorrhage from the throat or ear. The patient is then threatened by a possibly fatal edema of the larynx in addition to a fatal hemorrhage. Sudden rupture of an abscess into the larynx or trachea may also prove fatal.

Le Jeune and Steele[7] prefer massive parenteral penicillin therapy for cases of peritonsillar abscess unless spontaneous drainage is imminent. This treatment should be prolonged to prevent any tendency to relapse. The exact source of hemorrhage cannot be determined in advance, but it is usually from the common or internal carotid artery or jugular vein. Pharyngeal incision is useless in such cases. Immediate external exploratory incision, ligation of the bleeding point and determination of the condition of the internal jugular vein is the only safe procedure. Delay in cases of parapharyngeal abscess complicated by hemorrhage is usually fatal.

Case Report

D. B., an American white farm boy, aged fourteen, was hospitalized on April 28, 1950, on the service of a general surgeon.

History.—Chief complaint was swollen glands on the right side of the neck and bleeding from the mouth. About ten days before admittance the patient awakened with a sore throat. Three days later he felt much better and appeared to be recovering, but on the fifth day the soreness became more severe than it was at the onset. A swelling appeared on the right side of the neck and there was increasing difficulty in swallowing, talking and breathing. A short time before entering the hospital there was bleeding from the mouth.

Examination.—The patient appeared to be very ill and was bleeding moderately from the mouth. On the right side of the neck there were large, firm, confluent lymph nodes. The tongue, teeth and gums were normal. In the right tonsillar area there was a large mass which extended to the left, almost totally occluding the pharyngeal space. The temperature was 101.8°, pulse 76 and respirations 24. The lungs, heart, abdomen, and extremities were normal. Blood examination revealed: white blood cells 17,200, hemoglobin 12.6 gm., a differential of polymorphonuclear cells 84 per cent, lymphocytes 15 per cent. The urine analysis was negative, except microscopically there were 3 to 4 white blood cells and an occasional granular cast in a visual field. The blood pressure was 156/74. The mass in the pharynx was palpated by a gloved finger after which much pus and some blood escaped and the patient seemed somewhat relieved.

The treatment prescribed consisted of hot saline irrigations every two hours, warm moist packs to right side of neck, terramycin 250 mg. and penicillin 100,000 units intramuscularly every three hours.

Progress.—At 3:00 p.m. the patient had a severe hemorrhage from the mouth lasting several minutes. Whole blood intravenously was started at once. About 4:00 p.m. the nurse in charge reported that the patient was cyanotic and breathing with difficulty. At this time I was called in consultation and immediately performed a tracheotomy. The operation was carried out in the patient's room, as breathing had stopped and the patient had become unconscious. Upon opening the trachea, artificial respiration and the use of oxygen revived the patient. The temperature was 104.4°, pulse 140, respiration 24, and blood pressure was 110/55.

The tracheotomy tube was cleaned at varying intervals and on several occasions a moderate amount of blood was withdrawn from the trachea by suction. At 4:00 a.m. the following day, the nurse called and reported bleeding from the mouth and tracheal tube. Upon my arrival, the hemorrhage had stopped but there was evidence that the bleeding had been severe. Two similar incidences occurred during the next forty-eight hours.

Whole blood 500 cc. and glucose 5 per cent in saline intravenously were repeated several times. The temperature varied from 99.8° to 101.6°, the pulse from 88 to 120, and respirations from 20 to 28. The blood pressure readings were between 110/55 to 120/70. The patient was very alert and responsive, there was much less glandular swelling, and the pharyngeal space had become much freer. This made it possible to see a large ulcer posterior to the right posterior tonsillar pillar.

On the morning of the fourth hospital day the temperature by rectum was 100.8°, pulse 84, respirations 22, and blood pressure 130/90. At 6:00 a.m. hemorrhage from the mouth again set in and lasted several minutes, only to reappear in a short time. Pressure applied over the site of the ulcer failed to control the profuse bleeding, and the patient expired at 8:00 a.m.

At autopsy the pharynx, larynx, bronchial tree, and heart were exposed. Gross examination revealed atelectasis of both lower lobes of the lung, no doubt caused by aspirated blood. The pericardial cavity contained a moderate amount of colorless fluid. The specimen taken from the region of the pharyngeal area was a mass of necrotic tissue surrounding a ruptured wall of the internal jugular vein. Specimens were sent to a pathologist for microscopic study. The one taken from the bronchioles was reported to be mucus and pus. The section taken from the pharyngeal specimen was gangrenous tissue surrounding an erosion in a large vein.

Final Diagnosis.—Pharyngeal infection complicated by erosion of the internal jugular vein.

Cause of Death.—Secondary hemorrhage.

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VERTIGO

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History of Medicine In Minnesota

MEDICINE AND ITS PRACTITIONERS IN OLMSTED COUNTY PRIOR TO 1900

NORA H. GUTHREY
Rochester, Minnesota

(Conclusion)

Henry W. Wilkins (1838?-1866) had a short life and a brief professional career. He was one of the eleven children (of two marriages) of Darius Wilkins, a pioneer farmer of English descent who came to Minnesota from Vermont, via Illinois, and settled in Salem Township, Olmsted County, in 1855. Darius Wilkins was a Methodist, a Democrat, a justice of the peace and long a respected citizen of the county.

The following note appeared in the *Rochester City Post* of July 15, 1865, under date of June 26, ultimo: "Dr. Henry W. Wilkins, Physician and Surgeon, late assistant surgeon, U. S. N., respectfully begs leave to inform the citizens of Olmsted County that he has permanently located in Salem, and now offers his professional services in the practice of medicine and surgery. Calls promptly answered at all hours of day and night. Office hours from 10 a.m. to 2 p.m. for office patients. Office at Salem Cross Roads in the dwelling of Mr. John McDavis."

By October, 1865, Dr. Wilkins was in Rochester; in November he settled in Eyota, where he remained into February, 1866. He died by his own hand, from morphine, on December 16, 1866, at the Winona House, in Rochester, respite the efforts of Drs. R. M. Reynolds, E. C. Cross and W. W. Mayo to save him.

W. H. Willson, a homeopathic physician from Fond du Lac, Wisconsin, arrived in Byron, Olmsted County, in May, 1876, to practice "in company with Dr. Kendall" (Staunton B. Kendall, pioneer physician); this expression did not mean in partnership. At the same time Dr. I. H. Orcutt had come from Dodge Center to begin his initial practice and had announced that he perhaps would bring in a partner. The Byron contributor of personals to the Rochester newspapers said, "We welcome them all but fear that the unequalled health of our community will not furnish them the practice necessary for a living. They may get a few cases of whiskey cholera, but we hope not enough to keep them busy." In August, 1876, it was announced that Dr. Willson had returned to his former home in Wisconsin. In the Minnesota register of licensed physicians, for 1883-1890, appears the entry: "Willson, W. H. (H), Exemption Certificate."

Horace H. Witherstine (1850-1924) was from 1873 until his death a resident of Olmsted County and from 1886 a leading physician of the county and of Rochester. One of his old friends, a physician, has said, "He was the salt of the earth, vigorous, intelligent, kind, good to everyone."

The second of a family of five children (Charles, Horace, William, Margaret and Martha), Horace H. Witherstine was born in Herkimer County, New York, on April 14, 1850. His parents, David Witherstine and Margaret Petrie Witherstine, were of German descent. David Witherstine spent his life as a farmer and a writer for newspapers; his father, John Witherstine, was an American soldier during the Revolution and was present at the surrender of Cornwallis. Margaret Petrie Witherstine's father was a physician.

Horace H. Witherstine grew up on his father's farm, attended district school and Fairfield Academy, Fairfield, New York, from which he waas graduated in 1871. The following year he came to Minneapolis, Minnesota, where he took a course at the Minneapolis Business College. For the next ten years he taught school in or near Rochester. In January, 1877, with Professor and Mrs. Sanford Niles, Mr. Witherstine opened the Rochester Training School in Heaney's Hall; a year later he sold his interest to Mr. Niles. This institution, famous as Olmsted County's leading "select" school, in 1878 became the Rochester English and Classical School; it lives in memories as Niles Academy. Professor Witherstine from the autumn of 1878 was for three years principal of the schools of Elgin, Wabasha County, and for the three ensuing years was in charge of the schools of Dover, Olmsted County.

At Dover Horace H. Witherstine was married, on September 1, 1881, to Amelia T. Hatfield, who had been one of his pupils at the Rochester Training School. Mrs. Witherstine's father, William Henry Hatfield, of Scotch ancestry, was a native of Wyoming County, New York, a son of William and Paula Hatfield. Her mother, Martha E. Thompson Hatfield, born in Ohio, was a daughter of Benjamin and Mary Thompson, who were, respectively, English and German; Mr. and Mrs. Hatfield were married in Clinton, Iowa, in 1855 and shortly afterward came to Quincy Township, Olmsted County. Mr. and Mrs. H. H. Witherstine until 1886 made their home in Dover. Of their four children, William Horace was born in Dover, and Clarence Vernon, Glenn Sumner and Lela Margaret in Rochester.

In the autumn of 1884 Professor Witherstine, who had been reading medicine since 1882 in the intervals of pedagogy, began his formal training at Rush Medical College. He was graduated from Rush in June, 1886; on June 14 received from the Minnesota State Board of Medical Examiners certificate No. 1209 (R), and before July 1, 1886, had opened his first office in Rochester, over the leather store of Beardsley and Webster.

From the beginning of his practice Dr. Witherstine kept abreast of medical progress. He had been a student of the eminent Dr. Ephraim Fletcher Ingals at medical school and it has been noted that in 1887 he was applying in his practice Dr. Ingals' electric cautery for removal of nasal polypi in treatment for catarrh. At frequent intervals throughout his career he returned to Rush for postgraduate work, made clinical trips to eastern hospitals, and attended medical meetings. He was a member of the Olmsted County Medical Society (its secretary and treasurer, 1891); a founder of the Southern Minnesota Medical Association in 1892 (its secretary and treasurer, 1892-1898 and its president, 1899); a member of the Minnesota State Medical Society, he often was delegate to the American Medical Association, in which he was enrolled early in his career. In the medical journals of the state may be seen some of his contributions to the medical literature. As a preceptor he was helpful in the early nineties to at least two future physicians of southern Minnesota, Charles E. Fawcett, of Stewartville, and Homer F. Peirson, of Austin.

Dr. Witherstine did much to advance civic improvement. During his five terms as mayor of Rochester (1892-1902) he co-operated actively with the boards of health, local and state, in all matters of public welfare, particularly in obtaining for Rochester an adequate sewerage system. For a time in this period he served as health officer in the absence of Dr. A. S. Adams. And, having himself narrowly escaped death twice in runaways caused by "yapping yellow curs," he advocated as a measure of public safety the destruction of "useless dogs." He was instrumental, in 1898, in organizing the Red Cross Society in Rochester and in the county. He was a member of the local board of the United States Bureau of Pensions, and was an examiner for leading insurance companies and for fraternal organizations. He once served as an alderman, was a member of the board of trade, and for twelve years was a member of the city board of education.

When in January, 1903, Dr. Witherstine resigned the mayoralty of Rochester, it was to take his seat in the state senate; Dr. Charles T. Granger became acting mayor, Dr. L. W. Beecher came from Chicago to carry the senator's medical practice. For eight years Dr. Witherstine served well in the legislature. Perhaps his two major achievements were the bill (passed in 1905) that provided for reciprocity among accredited physicians from outside Minnesota who desired to practice in the state, a measure that had far-reaching beneficial effect on medical education; and the bill (passed in 1907) for creation of a state board of examiners of nurses and for registration of duly qualified nurses. He was disappointed only in failure to bring about successful legislation against manufacture and distribution of cigarettes in Minnesota.

Dr. Witherstine was a member of the Independent Order of Odd Fellows. He stood high in the Masonic order as a member of Rochester Lodge No. 21 (A. F. and A. M.); of Halcyon Chapter No. 8, Royal Arch Masons; of Home Commandery No. 5, Knights Templar; and of Osman Temple, A. A. U. N. M. S., at St. Paul. For several years he was editor of the *Rochester Bulletin*. He and his family were supporting members of the Congregational Church of Rochester.

On October 2, 1924, at the age of seventy-two years, Dr. Witherstine died by accident when his automobile was overturned on the St. Paul road as he was on his way alone to make a rural call. He was survived by his wife and by three children: Dr. William H. Witherstine, of Grand Forks, North Dakota, and Glenn S. Witherstine, then editor of the *Rochester Bulletin*, and Lela M. (Mrs. Russell L.) Drake, both of Rochester. Mrs. Drake died on December 12, 1938.

When Dr. Witherstine died, Dr. William J. Mayo, his friend since 1877, wrote of him:

> In the death of Dr. Horace H. Witherstine the state of Minnesota has lost one of its foremost citizens, a man of broad sympathies who filled a legislative office with distinction. The death of this fine citizen will be felt keenly by the people of Rochester. A kindly, friendly man, interested in everything that would contribute to the welfare of the city, he was known to practically every man, woman and child in Rochester and the surrounding country. For nearly forty years he was a wise counsellor, a loyal friend. To his large clientele who knew him so well personnally and depended on him for medical advice, his death comes as a shock. As a medical man he stood high in the state, and he made a number of valuable contributions to medical progress. It can be truly said of him that he was a great physician, interested only in the patient's welfare. Night and day he was at the service of the sick, never sparing himself and quite without regard as to whether or not he would be paid for the services he so generously rendered. Personally, I shall miss him very much. Our friendship dated back to the beginnings when he was a professor in Niles Academy and there, after leaving high school, I was one of his pupils. In the many years which gave almost daily contact, I learned to know the man and to love him.

Mrs. H. H. Witherstine, who for many years was prominent in church and civic work and in the educational program of the federated women's clubs of

Minnesota, died at St. Mary's Hospital, in Rochester, on September 4, 1949. She was survived by her son, Dr. William H. Witherstine, an able physician and surgeon of Grand Forks, and Glenn Sumner Withers (name legally changed from Witherstine), who since 1925 has been editor and publisher (president of the company) of the *Rochester Post-Bulletin.*

William H. Withrow, a native of Midway, Kentucky, it is believed, was born about 1859. He was graduated from the College of Physicians and Surgeons of Keokuk, Iowa, in 1883 and was licensed in Minnesota on August 18, 1884, receiving certificate No. 950 (R). Dr. Withrow came from Minneapolis to Rochester, Olmsted County, in December, 1893, the seventeenth appointee to the staff of the Rochester State Hospital, as physician in charge of the drug room. Dr. A. F. Kilbourne, superintendent of the hospital, in his biennial report in 1894, said that Dr. Withrow in addition to his regular duties rendered valuable assistance to the medical staff.

Dr. Withrow has been described by his acquaintances in Rochester as dark, slight, of medium height, well bred, well educated and well liked. He left Rochester about 1898 to enter private practice at Spring Station, Kentucky; he had been licensed in Kentucky in 1893. There is evidence that he remained in Spring Station through 1909. His name disappeared from the directory of the American Medical Association prior to 1912.

L. N. Wood, typical in length of residence of many physicians who came to Minnesota in the early decades, remained in Rochester, Olmsted County, only a month. Dr. and Mrs. Wood arrived in July, 1876, he to practice medicine, she to teach music, it was announced. They presently returned to Chicago, where Mrs. Wood had secured "an engagement to sing in a leading church."

Cornelius S. Younglove (1824-1907), a native of New York State, was one of Olmsted County's earliest physicians and surgeons, a man of culture and a practitioner of skill in his day. From Dixon, Lee County, Illinois, he arrived in Rochester late in 1856, when the settlement was little more than a cluster of small buildings in the wooded Zumbro valley. One of the first newspaper comments observed, pertinent to the present history, mentioned this physician: A resident of High Forest Township living eight miles from Rochester had suffered a severe gunshot wound of thigh and leg from a Sharp's rifle; the patient was under the care of Dr. C. S. Younglove and was doing well.

A son of Cornelius Younglove, whose forebears came from England to America in the sailing vessel, the *Hopewell,* Cornelius S. Younglove was born at Hammondsport, at the southern tip of Lake Keuka, in Steuben County, New York, on November 29, 1824. (One source gives Pleasant Valley, a few miles west of Hammondsport, as his birthplace.) He was educated in the common schools, probably at an academy also, as was the custom of the day, at the Geneva Medical College, and at the Albany Medical College, from which he was graduated in 1848. For a time he followed his profession at Hammondsport and Pleasant Valley before removing to Dixon, Illinois, where he practiced several years.

On October 20, 1856, Cornelius S. Younglove was married at Monroe, Green County, Wisconsin, to Kate E. Brundage; the Brundage family, of Welsh ancestry, were sturdy folk of upright character who settled first near Wilkesbarre, Pennsylvania, later removed to Pleasant Valley, New York, and some of them thence to Wisconsin.

Immediately after their marriage Dr. and Mrs. Younglove came to Minnesota. Their two daughters, Emma and Alice, were born in Rochester and were educated there in the public schools before attending college in the East. Both became school teachers of ability, Emma on the staff of the Rochester High School and Alice at Fisher University. A nephew of Dr. Younglove, Norton C. Younglove, also of Steuben County, New York, came to Rochester in 1856 from Davenport, Iowa, at the age of twenty years. He became one of the early merchants in Rochester. For many years, in 1947, his sons and their families had been residents in California and Washington.

For about twelve years, from 1856, Dr. Younglove carried on a heavy medical and surgical practice. He has been pictured as a slight man, of medium height, fair-complexioned and blue-eyed, who used spectacles and wore a short beard. Never strong, when in the late eighteen sixties his health began to fail under the stress of pioneer medical practice, he gave up his professional career and opened a store for the sale of sewing machines and musical instruments. In late 1868 he built on College Hill a home that the local press described as an elegant brick dwelling of two stories; this house stood for many decades at what is now the southwest corner of Fourth Street, S. W. and Seventh Avenue. Dr. Younglove was a Mason and a supporting member of the Congregational Church. In 1871-1875 he was a member of the city board of education. A courteous, kindly, Christian man, all his life he was loved and respected.

In the late seventies Dr. Younglove and his family began to spend the winters in California, where relatives from both the Brundage and the Younglove sides had preceded them, and in July, 1892, they removed to that state. Until 1894 they lived in Santa Rosa and thereafter in Ventura, where Dr. Younglove died on May 29, 1907, aged eighty-two years and six months. After the death of Miss Alice, also in Ventura, Mrs. Younglove and Miss Emma removed to Claremont, where they spent the remainder of their lives.

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NOTE: Reprints of "Medicine and Its Practitioners in Olmsted County Prior to 1900" will be made available if a sufficient number of orders are received by October 15, 1951. If interested, address MINNESOTA MEDICINE, Publication Office, 2642 University Avenue, Saint Paul 4, Minn.

President's Letter

CHRONIC ILLNESS

IT SEEMS paradoxical that many chronic illness cases are due to the fact that modern medicine has saved these patients from earlier death, only to have them become chronic invalids. Of such, are the severe polio cases, found in small numbers; survivors of some acute surgical conditions and cancer cases successfully treated. Accidents cause an increasing number of incurable conditions because of spinal or cerebral injuries. Rheumatism, with its heart sequelae, is in a place by itself because of its crippling effects on the hearts of young patients. Later arthritis, in its various forms, brings cases of crippling and deformity.

We have rightly taken pride in the marked improvement in longevity rates in the United States. At times the added years are not much to the advantage of the indivdual if he is crippled by arthritis, mentally ill from cerebral vascular disease, or suffering from a slow degenerating process of other chronic illnesses. There is little gain for the old patient with an arrested illness who is an invalid because of its sequelae.

A detailed study of this problem, state and national in scope, is being initiated. Recently a new and active interest has been shown in the value of the lives of the chronically ill. The Minnesota State Medical Association has this year named a Committee on Chronic Illness. This Committee will study the matter and will present a report of their findings. Because the number of chronically ill persons occurs in a direct ratio to their ages, the study of gerontology assumes great importance in studies of older age groups. Patients in rest homes need more than mere food and shelter. Most doctors have seen the rapid decadence of these old folks when they begin to lose interest in life, until, finally, their continued existence is a matter of indifference. Research will be made on measures for prevention and early detection of chronic disease and treatment.

Action to promote human welfare lags further behind established knowledge in gerontology than in any other field, according to the 1950 Conference on Aging. The Commission on Chronic Illness, in co-operation with the National Organization for Public Health Nursing, will make a survey of chronic illness activities of public health organizations. This study will include a survey of the type of nursing this group of chronically ill patients is receiving. A questionnaire will attempt to get information on unmet demands or needs for nursing services for this group.

The Commission on Chronic Illness has been functioning now for some time. Through it much information will be obtained on various types of chronic illness. These findings will be carefully studied and the result of such study will be made available to the members of the profession. It will include not only a survey of the number of chronically ill persons, but an attempt will be made to classify causes of such invalidism and to find measures for the prevention of such illness. The Commission is made up of representatives from the following: American Hospital Association, American Medical Association, American Public Health Association and American Public Welfare Association.

The work being done in the large clinics, University Hospitals and others, and in the Veterans Administration in this state, shows remarkable results in cases of spastic conditions and partial paralysis. Many are no longer helpless invalids and can return to some productive occupation or profession even though still handicapped. Thus, there is evidence that something is being done for the chronically handicapped person to make his life one of interest to himself, and to prevent further deterioration.

J. F. Norman

President, Minnesota State Medical Association

◆ Editorial ◆

Carl B. Drake, M.D., *Editor;* George Earl, M.D., Henry L. Ulrich, M.D., *Associate Editors*

ARTIFICIAL RESPIRATION

IN CASES of drowning or electric shock, the importance of instituting artificial respiration promptly and persisting with it until the certain signs of death, such as portmortem lividity and rigor mortis, appear cannot be too strongly emphasized. Even physicians who are supposed to be able to recognize the absence of life may be fooled following a drowning or high voltage shock and may not appreciate that there is a considerable period in such a situation during which artificial respiration may be successful.

Stefan Jellinek, former professor of electropathology at the University of Vienna and now working at Queens College, Oxford, in a recent article entitled "Artificial Respiration" which appeared in the July issue of the *Scientific American,* calls attention to the need for perseverance and the use of the Sylvester, not the Schaefer, method. He should know whereof he writes.

According to Jellinek, the cessation of respiration and heart beat as determined by the physician do not indicate the uselessness of artificial respiration. The period during which the victim can be resuscitated is indefinite, but victims have been saved after an hour or more of manipulation. The author prefers the Sylvester method with the subject on his back, pulling the arms outward and upward to expand the chest and then allowing them to fall back on the chest. He argues logically that this is the more physiological method, as expansion is normally the active process and there is danger of impeding the return of the blood to the heart with too strong a compression of the chest by the Schaefer method with the victim on his abdomen. The main objection to the Sylvester method is the swallowing of the tongue and obstruction to respiration due to the supine position. This has to be prevented by pulling the tongue forward by means of a forceps or safety-pin.

The author mentions the part that fear can play from an electric shock particularly. Susceptibility to electric shock varies enormously. The author has touched wires carrying 110 volts and has worked up to 440 volts without sustaining injury, whereas this voltage usually kills. Preparation for the shock eliminates the mental factor of fear.

Incidentally, there is reason to believe, too, that shock following fear, not muscle cramp, is the important factor in many drownings.

The author concludes that even an apparently lifeless victim of an electrical or drowning accident must be regarded and treated as capable of resusicitation, however hopeless the case may seem to be even to an experienced physician.

THE WOMAN'S AUXILIARY AS AN AID IN OPPOSING COMPULSORY HEALTH INSURANCE

THE NATIONAL Education Campaign which has been conducted by the AMA will come to a close at the end of the year. At the request of the House of Delegates, a nucleus of the campaign staff will be maintained ready to meet any further threats of socialistic moves against medicine. We may be sure some threats will be cropping up which will need counter action. In fact, there is evidence at present that efforts are still being made to further socialized medicine. To mention a few: the bill before Congress to provide free hospital care for all over sixty-five eligible for Social Security; the provision of medical care to veterans for non-service-connected disabilities without too much concern as to inability to pay for private care, which policy has grave possibilities with the institution of compulsory universal military service; activities of labor leaders to obtain endorsement of compulsory sickness insurance; misleading statements as to the medical care provided in this country.

It is gratifying to know that so many national organizations have gone on record as opposed to compulsory health insurance. It is not surprising perhaps that organizations of associated professions or industry such as the dentists, nurses, pharmacists and hospitals, are lending their support to the physicians' campaign for free enterprise. It is especially gratifying to see included in the list national organizations such as the American Association of Small Business, the American Bar Association, the American Farm Bureau Federation, the American Legion, the American Meat Institute, the American National Live Stock Association, the American Retail Coal Association, the American Trucking Association, the American Wholesale Lumber Association, the Associated General Contractors of America, the Certified Milk Producers Association of America, the Conference of American Small Business Organizations, the General Federation of Women's Clubs, the Insurance Economics Society of America, Kiwanis International, the National Asociation of Insurance Agents, the National Association of Life Underwriters, the National Federation of Business and Professional Women's Clubs, the National Federation of Independent Business, the National Retail Hardware Association, the National Small Business Men's Association, The United Brotherhood of Carpenters and Joiners of America, the U. S. Chamber of Commerce, the Veterans of Foreign Wars.

The list of organizations which have passed resolutions opposing Compulsory Health Insurance in the cities, counties and State of Minnesota is just as long as the list of national organizations. It should be much longer, and adding to the list is an objective which is being offered to the State and County Women's Medical Auxiliaries. All Auxiliary members have received informative material as to procedure and are urged to have local organizations to which they have contact pass resolutions opposing compulsory health insurance. The longer the list of organizations supporting the stand of the medical profession, the better will the efforts of the socialistic planners, who are endeavoring to obtain organizational support in favor of compulsory health insurance, be counteracted.

THIS TOPSY TURVY WORLD

LESS than a decade ago we were allied with Russia and presenting her with billions of dollars worth of material in our common cause opposing Hitler. Today we are organizing Western Europe, including Western Germany, to oppose the Russians under Stalin.

Less than a decade ago we were supporting China, more or less, in her fight for survival against the Japanese. Today it becomes necessary to combine against a Communist China to save Japan and non-Communist Asia.

It used to be a virtue to work hard, save money, invest judiciously and have a reserve for old age and to hand down to the next generation. Today a hard worker is too often frowned upon by his fellow workmen, and a forty-hour, five-day work week is considered enough labor for most industry. Certain incentives to save, such as the need for food, raiment and housing, still exist and probably always will, unless we have these items provided by a Communistic government. In this case, force will be the most powerful incentive. The graduated income and inheritance tax has resulted in less incentive to save and invest. The revised income tax law already passed by the House and up for action by the Senate early in September will further reduce the incentive to increase one's salary or income. A point will soon be reached where there will be no reason for investing so-called risk capital. This will be the end of the so-called capitalistic system.

The avoidance of debt used to be a virtue. For the past ten years, the borrower who now can pay back his loan in depreciated currency has been the wise financier.

To purchase annuities for security in old age used to be considered wise. Low returns on conservative investments has resulted in poorer returns on mutual insurance policies in dollars' worth, in some instances half as much as those invested.

To be able to leave a substantial estate to one's widow and children used to be considered an indication of success. Today anyone who leaves a large fortune to be subjected to inheritance taxes is lacking in astuteness, to say the least.

While there were some aspects of the "good old days" which we are well rid of, the present topsy turvy situation as regards certain fundamental virtues is distressing.

INJECTIONS AND POLIOMYELITIS

Poliomyelitis is a serious disease that occurs each year in Minnesota. Reported cases in a year may be as few as twenty-two or as high as 2,881. About 7 per

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From the section of Preventable Diseases, Minnesota Department of Health.

cent of the patients reported die. Careful consideration must be given to any measure which may have an influence on the incidence or outcome of the disease.

Throat operations have been shown to be such an influence. Persons who have poliomyelitis after the removal of tonsils and adenoids usually have the worst form of the disease (bulbar), and death in this form is frequent. It is now general practice to advise the postponement of elective throat operations during the poliomyelitis season in those areas where the disease is increasing, or has reached a high incidence. Such postponement seldom causes any real harm to the individual.

Recently, attention has been drawn to the possible adverse influence of injections on the outcome of poliomyelitis. There is evidence from several areas that persons who develop poliomyelitis within a month after receipt by injection of an antigen, such as diphtheria toxoid, or of other materials, such as penicillin or liver extract, show increased frequency of paralysis in the extremity into which the injection was given. The risk of getting paralytic poliomyelitis is increased by the procedure of injection.

This raises the question—should injections be omitted or postponed? In regard to injections of immunizing antigens, it is important to weigh the danger of such procedure. Many years of promoting immunizations has resulted in reducing deaths from diphtheria in Minnesota from several hundred each year to less than ten, and whooping cough to less than fifteen. Neglect of immunizations could easily increase the number of deaths from these and other preventable diseases, such as tetanus and smallpox, to well over the number of poliomyelitis deaths occurring even in epidemic years. Immunization procedures should continue to be furthered by every available means, in view of the positive benefits produced, but the timing of such injections should be limited to those months when poliomyelitis is not present in the community. In any case, the danger is not to life but to some degree of increase in paralysis of the limb injected.

An exception to this procedure may be made for infants under six month of age for two reasons: first, the incidence of poliomyelitis in this age group is very small; second, modern pediatric practice urges that initial immunization against diphtheria, pertussis, tetanus, and smallpox be started by three or four months of age. Thus the hazard to this age group should be minimal.

Certain prophylactic antigen injections cannot be postponed. The following are examples: immunizations of persons traveling abroad; tetanus antitoxin or toxoid following injuries; rabies vaccine following a bite of a rabid animal; diphtheria antitoxin for prophylaxis; gamma globulin for modification of measles; allergens used in testing and treating allergic patients.

In regard to the injection of other materials for diagnostic or therapeutic purposes in medical practice, the association of such injections with the development of paralysis in poliomyelitis has been reported as of the same order as when immunizing materials are used. Such injections are seldom elective and cannot be postponed. The risk in their use is to be compared with the known benefits to the patients offered by the antibiotics, insulin, antitoxin, and other therapeutic agents.

Finally, it may be emphasized that the danger of injections described above applies only during the time that poliomyelitis is itself prevalent in a locality to an extent that it also constitutes an unusual hazard to the individual. The incubation period of poliomyelitis, during which this hazard is present but unrecognizable, does not seem to exceed one month. In this regard, other factors which produce general or localized trauma or fatigue during the incubation period may equally increase the severity of the resulting disease. Excessive physical strain, or violent exercise are such factors and should be avoided during an epidemic, or in case of known exposure.

ACUTE RHEUMATIC FEVER TREATED WITH CORTISONE AND ACTH

(Continued from Page 854)

whether cardiac injury has been sustained and to evaluate the extent of the injury when present.

Other effects observed were marked improvement in appetite and morale, gain in weight, temporary production of moon-shaped facies, appearance or aggravation of acne, occurrence of white and reddish-purple striations over the thighs and buttocks, and amenorrhea among patients whose menses had become established. In only one case was it necessary to discontinue the use of these hormones temporarily, and in that instance it was owing to the use of an unsatisfactory preparation of ACTH.

In one case, organic valvular defects and cardiac hypertrophy resulting from previous attacks of rheumatic fever were not modified by administration of cortisone. These hormones did not render patients immune to recurrence of acute rheumatic fever. Recurrences have occurred in two of our cases.

Our experience gives rise to considerable hope that the early and adequate administration of cortisone or ACTH to patients in initial and subsequent recurrent attacks of rheumatic fever will probably prevent or markedly minimize permanent cardiac injury in the large majority of instances. These patients and many other patients with acute rheumatic fever will have to be treated and followed over long periods of time before it can be determined whether cortisone or ACTH actually prevents patients with acute rheumatic fever from developing chronic rheumatic heart disease.

Medical Economics

Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association
George Earl, M.D., Chairman

INCOME SURVEY STIRS COMMENT

As was anticipated by many vitally concerned with the recent survey on the United States physicians' incomes, comment has been varied and wide. Physicians in Minnesota have found themselves the focal point of the nation, and many have felt that they are being accused of exhorbitant fee charging because this state has come up with the highest average net income in the nation—$13,175. However, the reasons behind this latest figure for 1949 incomes are somewhat complicated and should be studied in the light of added data and further analysis.

The survey, conducted jointly by the U. S. Department of Commerce and the Bureau of Medical Economic Research of the American Medical Association, was based on the replies of 55,000 physicians out of a possible 125,000 who were contacted. This response was termed by the American Medical Association as "the best and broadest mail questionnaire income survey ever taken of any profession." Frank G. Dickinson, Ph.D., Director of the Bureau of Medical Economic Research of the AMA, said also, "This remarkable and unprecedented number and percentage of returns in a survey of professional incomes has exceeded all expectations and gives the study an importance unique in the history of mail income surveys." Physicians can conclude, then, that the study is based on representative, authoritative and accurate figures, and they can rely on all conclusions which people in a position to know have drawn from the survey.

Average Income Doubled

First of all, the study showed that the average net income for physicians in 1949 was $11,058. Dr. Dickinson reports that probably the most significant information of the survey is that, in the twenty-year period since 1929, the average net income of all civilian physicians more than *doubled,* but this relative increase was practically identical with that for all wage earners in the general population over the same period.

The study showed conclusively that physicians in medium size communities fared better financially than their colleagues in the big cities. An editorial in *The Journal of the American Medical Association* comments:

> "The study is replete with evidence that the highest average incomes are not being earned by physicians in the large metropolitan cities. This information should buttress the argument of the many physicians and lay leaders interested in improving medical care in the smaller cities and towns of the rural parts of the country."

The survey brought out certain differences in income average of the general practitioner and the full-time specialist. The average net income (before taxes) of general practitioners in independent practice was $8,835, as compared with $15,014 for full-time specialists. This is explained by the AMA: "the income margin between specialists and general practitioners may or may not have a dollar value sufficient to offset the extra financial sacrifice during three or four years of additional training at nominal salary, or the personal sacrifice at a time in life when most young men are starting . . . to have a family. Furthermore, the tendency of specialists to locate in the larger cities where family living costs are higher may offset some of the extra earnings of specialists. . . ."

Refutes Physician Shortage Claim

The Journal of the American Medical Association declares editorially that the survey sufficiently refutes claims that there is a doctor shortage in the nation. *The Journal* says:

> "In the larger sense this study demonstrates again that there was no nation-wide shortage of physicians in 1949, for physicians' incomes had risen just about as fast percentagewise as the average income of the American people. The mean and median net incomes of physicians in 1949 would have been far higher if there had

> been a nation-wide shortage of physicians. On the other hand, this study provides much evidence of the economic advantages of practicing medicine in the small and medium-sized cities and, indirectly, may suggest to some an over-supply of physicians in metropolitan centers."

The survey is based purely on accurate satistical analysis, which involves terms which may or may not be familiar to physicians. Figures are given for the "mean" and "median" net incomes. The mean is the statistical average, while the median is the half-way point, i.e., half of the physicians reporting had a higher income than this figure and half had a lower income than this figure. Dr. Dickinson pointed out that many statisticians consider the median a more representative value than the mean in income statistics for most occupational groups.

Minnesota's Average Explained

Why is the Minnesota doctor's income average so much higher? The answer is given carefully and reasonably by Dr. Dickinson, who is nationally known for his accurate and dependable analyses of facts and figures.

Of the 55,000 replies received, nearly 30,000 were completely analyzed. Of these 30,000, 77.7 per cent were from physicians who derived more than half of their medical income from independent practice and 22.3 per cent were from physicians who derived more than half of their income from salaries. However, Dr. Dickinson reports:

> "The returns from Minnesota were far different: 66.5 per cent came from Minnesota physicians in independent practice—11.2 percentage points *below* the national average. On the other hand, 33.5 per cent of the Minnesota physicians were in salaried practice, which is 11.2 per centage points *above* the national proportion of our returns. Thus my first conclusion is that in this survey a disproportionately large percentage of the returns from Minnesota was from physicians in salaried practice."

The returns from full-time specialists showed that Minnesota had a percentage about equal to the national percentage, 46 and 45.8, respectively. This shows that Minnesota is typical of the nation in the percentage of all physicians who are fully specialized.

The study was also divided into three other parts: 66.6 per cent were in non-salaried practice (no income from salaries); 16.8 per cent were in part-salaried practice (1 to 99 per cent from salary), and 16.6 per cent were in "all-salaried" practice. These three figures for doctors in Minnesota were 57.2 per cent, 13.8 per cent and 29 per cent. Thus Dr. Dickinson has concluded that Minnesota's percentage is low on non-salaried, low on part-salaried, but distinctly high on all-salaried.

Let it be said at this point that Dr. Dickinson and his staff can only make conclusions on the information from those physicians who replied to the questionnaire. However, since such a large percentage did reply to the survey, and since an accurate picture can be drawn, statistically, from a lesser amount in a cross-section survey, it is reasonable to assume that the figures are generally representative.

Further explanation is given by Dr. Dickinson for Minnesota's high average physician income:

> "Only 60.3 per cent of the national sum of the part-salaried and the all-salaried were full-time specialists, but in Minnesota 70.4 per cent of the sum of the part and all-salaried physicians were full-time specialists. Not only were the returns from Minnesota extremely high percentagewise for all-salaried physicians (29 per cent versus 16.6 per cent) but on top of that, the per cent of full-time specialists in the all-salaried plus the part-salaried combination was far above the national proportion (70.4 per cent versus 60.3 per cent)."

Based on these findings, Dr. Dickinson concludes that the explanation for the premier ranking of Minnesota is not due to the physicians who receive more than half of their incomes from fees, but is due to the high average for physicians who receive more than 50 per cent of their income from salaries. He also says that it would be unreasonable to read into these figures any notion that fee schedules are extremely high in Minnesota. Recent increases in the incomes of physicians are due to a moderate rise in fee schedules, better collections and a remarkable increase in "output per physician."

In making his final conclusions concerning Minnesota's position in the national physician income survey, Dr. Dickinson said: "The mean (average) net income of physicians in salaried practice in Minnesota is far above that of any other state because the proportion of those who are full-time specialists in salaried practice is unusually and abnormally high as compared with the entire nation, and their mean net income was 41 per cent higher in the U. S. than that of general practitioners in salaried practice. Thus the real reason for the mean net income of *all* physicians in Minnesota—$13,175—being higher than that for any other state is traceable directly to the fact that our survey obtained such a high proportion of full-time specialists in salaried practice in Minnesota. . . . Minnesota is blessed with many well-paid full-time specialists who are in salaried practice."

MEDICAL-DENTAL CARE NOTED FOR AIR FORCE PERSONNEL

The United States Air Force is responsible for the provision of medical and dental care to United States Air Force military personnel on active duty, and to their dependents in so far as facilities are available. Whenever it is feasible and practicable for Air Force personnel to receive medical care at Air Force medical installations they should do so. Conversely, Air Force medical installations provide medical and dental care to all Air Force personnel who may be assigned in the area, whether or not these personnel may be assigned to the particular Air Force base.

Naturally, it is not possible to have USAF medical installations readily accessible to personnel in every geographical location. In those locations where we do not have such facilities, it is necessary to depend on other governmental or civilian agencies for these services. Those agencies include medical and dental services of the Armed Forces (Army and Navy), and other federal agencies, such as the Veterans Administration and the United States Public Health Service. When medical and dental services of government agencies are not available, care may be obtained from civilian sources at no expense to the individual, provided such care is a necessity and an emergency. Only active duty Air Force personnel on duty, leave or informal leave (pass status) or those people stationed where no other military or federal medical installation is available may utilize civilian medical care at Air Force expense. USAF military personnel absent without official leave (AWOL) are not authorized civilian medical care, but can receive treatment at any military installation. Dependents of active duty Air Force personnel are not authorized civilian medical care at Air Force expense.

All bills for services, including ambulance charges, rendered USAF military personnel by civilian physicians or medical facilities will include:

1. Full name, rank, service number and organization to which assigned for duty.
2. Duty status of patient, if known, i.e., duty, leave, or informal leave (pass).
3. Inclusive dates of treatment if hospitalized, otherwise, date and place of treatment.
4. Diagnosis.
5. Charges (itemized separately for services, drugs, x-rays, etc.).
6. A statement certifying that the bill is correct and just; that payment has not been received; that the services rendered and the medicine furnished were necessary; and that charges do not exceed those customary in the vicinity.

Payment for medical and dental service properly submitted from civilian sources to USAF military installations will be accomplished promptly after receipt of necessary authenticated vouchers. The civilian physician is advised to send the bill for services rendered directly to the Commanding Officer of the nearest Air Force Base.

THE MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

230 Lowry Medical Arts Bldg.,
Saint Paul 2, Minnesota

Julian F. DuBois, M.D., Secretary

LICENSE OF SPRING VALLEY PHYSICIAN SUSPENDED FOR TWO-YEAR PERIOD

Re. Louis W. Katzberg, M.D.

Following a hearing before the Minnesota State Board of Medical Examiners on July 20, 1951, the license to practice medicine held by Louis W. Katzberg, M.D., of Spring Valley, Minnesota, was suspended for a period of two years. Dr. Katzberg was charged with habitually and excessively indulging in the use of alcoholic liquors.

On August 14, 1951, Dr. Katzberg was found to be an inebriate person following a hearing in the Probate Court of Fillmore County, and was ordered committed to the Willmar State Hospital for treatment.

Dr. Katzberg is forty-seven years of age and a graduate of the Medical School of the University of Nebraska in 1932. Dr. Katzberg was licensed to practice medicine in Minnesota in 1935. He has practiced at Spring Valley since 1939.

DOCTORS NUMBER 209,040

The annual physician census of the AMA shows that the doctor population of the United States at the end of last year totaled 209,040. About 72 per cent of these, or 150,220, were in private practice. The other 58,820 were (1) in research, teaching, or administrative jobs; (2) in government service; (3) retired; or (4) interns or residents.

The total number of physicians was decreased by 3,794 deaths and increased by 6,002 new doctors, with a net gain of 2,208.—*Medical Economics,* August, 1951.

American Medical Association

House of Delegates—Summary of Proceedings

Atlantic City—June 11-15, 1951

The House of Delegates convened on Monday, June 11, in the American Room of the Traymore Hotel, Atlantic City, and was called to order by the Speaker, Dr. F. F. Borzell, at 10 a.m.

After preliminary proceedings including the invocation, the adoption of the minutes of the interim session, and the roll call, the House heard the address of the Speaker, presenting general directions and greetings. He then read the names of members and chairmen of the reference committees.

The House passed a resolution expressing regret at the death of Dr. Roy W. Fouts. Dr. Allen O. Whipple, New York, was elected as the recipient of the Distinguished Service Award. The House accepted a $2,000 gift from the American College of Radiology for the American Medical Education Fund.

The address of the President, Dr. Elmer L. Henderson, was then heard by the House. Dr. Henderson reminded members: "With the socialistic threat now dispelled, at least temporarily, I believe that this is a good time to remind both doctors and the public of the basic, long-range objectives of this organization. Stated briefly, those objectives are to promote the national health through scientific activities, to foster and maintain high standards of medical practice, and to solve health problems in a manner most conducive to the public welfare." He outlined the wide range of interests and programs of the American Medical Association.

Twelve Points Studied

Dr. Louis H. Bauer, Chairman of the Board of Trustees, presented his report. He reported that the net income in excess of expenses for 1950 is $27,800.45. Dr. Bauer's report also included recommendations and discussions of: exemptions from membership dues, hospital standardization, joint commission on accreditation of hospitals, inter-association Committee on Health, statement of maternal and child health, principles for the improvement and better distribution of nursing services, local health units for the nation, twelve point program, and public relations department expansion. All recommended actions and resolutions were referred to proper reference committees.

The report of the Board of Trustees was discussed section by section and approval was given to a policy endorsing aid to medical schools for construction only, and to the Board's statements on exemption from membership dues, expansion of public relations department, Student American Medical Association, appointment to membership on Council on Scientific Assembly, resolution on absentee ballot and the Treasurer's and Auditor's report.

The Reference Committee on Insurance and Medical Service recommended disapproval of the section of the Board of Trustee's report on the statements of the Inter-Association Committee on Health, but recommended continuation of the committee's activities.

Considerable discussion was given to the proposed Joint Commission on Accreditation of Hospitals. It was the recommendation of the Reference Committee on Medical Education and Hospitals that support should be given the Board of Trustees in their attempt to rearrange the voting power in this Commission to: three representatives of the American College of Surgeons; three representatives of the American College of Physicians; four representatives of the American Hospital Association, and eight representatives of the American Medical Association.

The supplementary report of the Board of Trustees was given by Dr. Louis H. Bauer, chairman, and each recommendation was referred to its proper reference committee.

Earmark Donations

Approval was given to: the recommendation that physicians may earmark medical education fund contributions for any medical school they desire; the resolution congratulating the National Broadcasting Company on its twenty-fifth anniversary; that the special committee to review the Twelve Point program be empowered to formulate a statement of policy that will guide the Association and constituent societies in implementing this program and in dealing with legislative proposals affecting medical welfare: appointment of an advisory committee to the Council on Medical Education and Hospitals to study the problem of discrepancy between the number of internships offered and the number of available candidates; appointment of a committee on nervous and mental diseases; the effort to induce the internal revenue department to authorize deduction of expenses incurred in postgraduate medical education by doctors, and a proposed change in the composition of the Council on Medical Service was disapproved and a recommendation was made that a special committee be appointed to review the organizational structure of standing committees.

Editors Give Plaque

The House then heard the report of the Secretary, Dr. George F. Lull. This was followed by the report of the Co-ordinating Committee which was approved. A plaque from the National Editorial Association, commemorating the outstanding contribution to individual freedom and maintenance of the American way of life made by the American Medical Association, was presented.

Dr. Walter F. Donaldson, acting chairman of the Judicial Council, presented that council's report, which was approved.

The report of the Council on Medical Education and Hospitals was given by Dr. Herman G. Weiskotten, and approved by the House.

The secretary introduced to the House, Dr. A. Sharman of Glasgow, Scotland, the official delegate from the British Medical Association.

The House heard the report of the Council on Medical Service, Dr. James R. McVay, Chairman, reporting. This report was approved, including a proposed project, "You and Your AMA" to be included in the annual meeting programs of constituent state societies, designed to inform doctors of the many functions and services of the American Medical Association.

The House adopted an amendment to the By-Laws changing the composition of the Board of Trustees to include the President and the President-Elect.

Correlate Ads

The House approved a resolution recommending that all curative workshops and institutions providing physical therapy be under the direct supervision of a qualified physician. Approval was given a resolution recommending to advertising agencies that they make all efforts possible to correlate their advertising programs with the principles of the best practice of modern medicine.

The House passed a resolution approving the program of the National Society for the Prevention of Blindness for the promotion of research, education and preventive service.

The House approved a resolution endorsing a request to Congress to thoroughly investigate our entire school system, with particular reference to the teachers and authors of textbooks advocating the overthrow of the American system of free enterprise by the infiltration of un-American fallacies of collectivism.

Preceptorships Okayed

Approval was given the system of preceptorships, but it was recommended that they be continued on a state level and that details be left to individual deans' committees of medical schools, the local county or state medical society or local chapters of the Student American Medical Association.

The House approved a resolution commending the sponsoring medical societies for the program of Blue Shield plans they have initiated.

The House approved a resolution recommending that the American Medical Association consider the problem of shortened insurance reporting forms and collaborate with insurance companies to develop a shortened form.

The House approved a resolution recommending that the Council on Medical Service be directed to conduct a proposed study of relationships between the AMA and medical society-sponsored prepayment plans, and to submit its findings to the Interim Session.

The House approved a resolution calling for economy in federal government in conducting courses of postgraduate work for the medical profession.

The House approved a resolution requesting that the Council on Medical Education and Hospitals study the problem of multiplicity of medical meetings.

A resolution requesting establishment of single membership classification was referred to the committee on Constitution and By-Laws to make necessary changes allowing discontinuance of the term "Fellowship" and to report to the next meeting of the House.

Action on Dues

The House disapproved a resolution calling for acceptance of payment of 1951 dues regardless of payment of 1950 dues.

The House approved a resolution endorsing the use of advertising slogans and space for such slogans to place before the public the continuing story of medicine.

The House approved a resolution urging all doctors, regardless of type of practice, to participate in their community's emergency call plans, national specialty boards being requested to facilitate general participation by assuring members that such participation would not jeopardize specialty ratings.

The House approved a resolution expressing unalterable opposition to communism, nazism, fascism, state socialism or other forms of collectivism.

The House approved a change in the Constitution which would allow the five immediate past presidents of the American Medical Association to be members of the House of Delegates for five years with power to vote.

The House referred for implementation to its Interim Committee on Constitution and By-Laws, a resolution calling for establishment of a membership classification for both retired and emeritus members with relief from payment of dues.

The House adopted a resolution requesting the taking of immediate steps to inform the public, hospital trustees and the medical profession as to the facts pertaining to the practice of medicine in hospitals and the AMA principles governing the same.

The House referred a suggested set of standards, for permitting physicians to apply radium in hospitals, to the Council on Medical Education and Hospitals with the recommendation that they be distributed to hospitals in the United States.

The House voted to re-evaluate the position of the American Medical Association regarding delinquent 1950 dues. The House approved a resolution reaffirming the American Medical Association's policy to publish in the Journal discussion of controversial medical matters submitted by members.

The House then heard the report of the Interim Committee on Constitution and By-Laws, which presented recommended changes regarding associate membership, ex officio members of the House, number of delegates, annual dues, Section on Military Medicine, ex officio committee members, executive session.

Trustees' Report

The House heard the supplementary report of the Board of Trustees:

The House approved a resolution, presented by the Board of Trustees, reaffirming the Association's policy of belief in continued civilian control in medical and health phases of national defense through the Armed Forces Medical Policy Council of the Department of Defense.

The House voted approval of the Board of Trustees' suggestion to begin a study of the medical problems involved in the conduct of the new universal military training program.

The House approved the principle whereby the existing specialist centers within the Veterans Administration are used for the care of military personnel so severely disabled that their return to active duty is unlikely.

Dr. Louis H. Bauer, chairman of the Board of Trustees, presented the report of the Board on medical relations in Workmen's Compensation, which was accepted by the House, which recommended that the findings reported be used as a basis for further study.

Blood Bank Study

Dr. L. W. Larson, Chairman of the Committee on Blood Banks, presented his committee's report, which outlined a study on blood banks and blood procurement in the nation. The House approved this report.

The House heard the report of the Committee on Chronic Diseases, by Dr. Robertson Ward, Chairman, and heartily approved the all-inclusive study.

The House passed a resolution expressing appreciation to Whitaker and Baxter for their excellent campaign in the educational program.

Dr. Elmer L. Henderson presented a check for $10,000 from the Woman's Auxiliary to the American Medical Association for the American Medical Education Foundation, and a motion of thanks was passed.

Dr. Dwight H. Murray, Board of Trustees, presented a supplementary report of the Board, recommending that the 1952 dues be $25, including subscription to the Journal, expansion of the Association's activities in the field of physician placement in communities where difficulty in obtaining physician service is encountered, and approval of a letter to Dr. Howard Rusk, Chairman of the Health Resources Advisory Committee in the Office of Defense Mobilization urging that the committee recommend that deferments be limited to persons in those categories for which a need in the armed forces or a shortage in the civilian economy have been specifically established.

Dr. Murray also announced that the Board of Trustees had selected Miami, Florida, as the place for the 1954 Clinical Session.

The Speaker, Dr. F. F. Borzell, informed the House that the Board of Trustees had acceded to the expressed wish of the House that Whitaker and Baxter be retained.

Doctor Bauer Elected

Election of officers followed:

President-Elect—Louis H. Bauer, M.D., Hempstead, L. I., N. Y.
Vice President—Oscar B. Hunter, M.D., Washington, D. C.
Secretary—George F. Lull, M.D., Chicago.
Treasurer—J. J. Moore, M.D., Chicago.
Speaker, House of Delegates—F. F. Borzell, M.D., Philadelphia.
Vice Speaker, House of Delegates—James R. Reuling, M.D., Bayside, N. Y.

The House elected Dr. Walter B. Martin, Norfolk, Va., as a member of the Board of Trustees to succeed himself, and Dr. David B. Allman, Atlantic City, to succeed Dr. Louis H. Bauer.

The House elected Dr. Walter F. Donaldson, Pittsburgh, to succeed himself as a member of the Judicial Council.

Dr. Samuel P. Newman, Denver, was elected to succeed himself as a member of the Council on Scientific Assembly.

Dr. Franklin D. Murphy, Kansas City, Kansas, was elected to succeed Dr. W. S. Middleton as a member of the Council on Medical Education and Hospitals.

Dr. H. B. Mulholland, Charlottesville, Va., was elected to succeed himself as a member of the Council on Medical Service. The House elected Dr. Joseph D. McCarthy, Omaha, to succeed himself as a member of the Council on Medical Service.

Committee Selected

The House approved nominations for members of the permanent Committee on Constitution and By-Laws: Drs. James S. Stevenson, Tulsa, for a term expiring in 1952; Stanley H. Osborn, Hartford, Conn., for a term expiring in 1953; Floyd S. Winslow, Rochester, N. Y., for a term expiring in 1954; B. E. Pickett, Sr., Carrizo Springs, Texas, for a term expiring in 1955; Louis A. Buie, Rochester, Minn., for a term expiring in 1956; the president, the secretary, the assistant

(Continued on Page 906)

Minnesota Academy of Medicine

Meeting of January 10, 1951

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town and Country Club on Wednesday evening, January 10, 1951. Dinner was served at 7 p.m. and the meeting was called to order by the new president, William H. Hengstler, M.D., at 8:10 p.m.

There were forty-two members and one guest present.

Dr. William A. Hanson, Minneapolis, retiring president, then read his presidential address, entitled "Healing of Wounds with Special Regard to Disruption and Evisceration."

THE HEALING OF WOUNDS WITH SPECIAL REFERENCE TO DISRUPTION AND EVISCERATION

WILLIAM A. HANSON, M.D.
Minneapolis, Minnesota

Inasmuch as dehiscence, eventration, disruption, or evisceration is to be considered it seems appropriate to first stress the salient features of the healing of wounds, being cognizant of the fact that they have been reviewed and subjected to many investigations. We hope it will merit your interest and consideration and bring forth discussion.

The Healing of Wounds

It is obvious that many phases of the subject will necessarily have to be omitted and only the important features emphasized.

There is no known or generally available substance for general or local use which will accelerate the normal rate of wound healing. However, there are a number of adverse factors either local or systemic, or a combination of both which do retard the healing of wounds. What may these be?

One should strive to maintain a normal fluid and electrolyte balance, blood volume, and nutrition, including more than a sufficiency of caloric, vitamin, and protein intake.

If infection manifests itself, antibiotics and chemotherapeutic agents are more effective than local applications.

Failures also may be the end results of any mechanical restriction of the vascular supply as by excessive suture tension, constriction by tight bandages, splints or pads, and hemorrhage within the wound by increasing the tension.

Protein

Ravdin, Thompson and Frank[13] found that 72 per cent of the wounds in hypoproteinemia animals either failed to heal or disrupted. Hartzel et al[6] also found in their review of the subject a similar effect from deficiency in protein and Vitamin C content, probably protein deficiency being more important than Vitamin C deficiency.

Lyons and Mayerson[10] showed that in severe illnesses, wound healing is delayed if there is subnormal total serum protein and reduced blood volume. Improvement was noted if liberal amounts of blood by transfusion were administered if the patient had lost 10 per cent of normal body weight from bleeding even if the serum protein level was within the accepted normal range.

Likewise, Vitamin C is important relative to wound healing[9,11] and disruption, especially when the content is below normal, as for example in carcinoma, chronic infection and ulcerative lesions of the gastrointestinal tract. One may suspect a lack of Vitamin C from patient's history when there is (1) an inadequate intake; (2) faulty intestinal absorption; (3) excessive loss from, or sequestration by the tissues.

The loss may be taken care of by administering Vitamin C orally or parenterally; if excessive amounts are given they are eliminated in the urine. Some 0.5 to 4 grams have been advocated by different writers.[11]

Levenson, et all,[8] suggest that persons who have had a severe injury, hemorrhage, or infection show improvement in the healing of wounds from the administation of large doses of Vitamin C and B complex, and for the first few days of stress a patient should have 1 gm. of ascorbic acid, 50 mgms. thiamine, 50 mgms. riboflavin and 500 mgms. nicotine acid daily, and thereafter, small amounts until improvement has manifested itself.

Fluid and electrolytic balance are important factors in the healing process of wounds. Arey[1] has advocated a caloric intake to 4,000 calories in certain cases of hypoproteinemia.

Acidosis favors wound healing, and the reverse is true of alkalosis.

Other factors influencing the process are splinting of wounds, careful suturing to hold the tissues in apposition, complete rest and immobilization in certain cases.

One should not fail to mention another complicating factor in the healing of wounds, that of infection.

It has been pointed out by Owens,[4] it is possible to draw organisms through sixty-four thicknesses of soaked gauze dressings, and that cellophane interposed between the layers would be successful in preventing their passage to the wound. Probably this may have motivated Lester to interpose mercury cyanide in the dressing. The incidence of infection in clean wounds may vary from 2 to 4 per cent, and may assume a total of 20 per cent.

John Blair,[2] in a very comprehensive review, has made an exhaustive study of postoperative infections in surgically clean wounds, stresses many important sources of contamination: the respiratory tract especially, the nose and throat of the operating team and nurses, and the hands. He concludes that talking, sneezing, and coughing should be kept to a minimum, since these disseminate large quantities of bacteria in droplets of various sizes. The larger droplets tend to drop to the floor or the interposed surface, while the tiny droplets evaporate and form droplet nuclei and are suspended in the air and many may be scattered by air currents. Meleney[12] estimated in 1935 that 35,000 to 60,000 bacteria fall on the operative field in the operating room within one hour.

It is well known that there is no efficient mask as yet devised, but, nevertheless, masks to cover the nose and mouth are desirable. The longer they are worn, the less efficient they become.

Hallman,[2] in 1938, found 50 per cent of all adults with potential pathogenic bacteria in the nostrils. He suggested Penicillin lozenges to combat streptococci and staphylococci in the throat.

According to Price,[2] there are two kinds of bacteria on the skin, transient and resident, the former being easily removed by washing and scrubbing, while the latter are removed with difficulty, requiring approximately 2.5 hours, and are confined to the superficial layers, sweat, and sebaceous glands.

Also, the gloved hand which perspires during operation may multiply the bacteria from a few thousand to over a million in a short period of time, and that gloves are reported to be punctured or torn on an average of 14 to 24 per cent. and that some surgeons are persistent carriers of staphylococci on the hands.

In the air the droplets or droplet nuclei from the respiratory tract are shed in the dust, dirt, or dried discharge from clothing, bedding, or dressings, and the bacteria are directly proportional to the number of the occupants, their duration of occupancy, amount of activity and talking in the operating room. Movements, especially sudden and vigorous, draping, the donning of gloves or shifting of lights, may dislodge and spread the organisms in wards and rooms as well as in the operating room.

Sources of infection in the operating room, as a rule, are of minor importance and are generally due to faulty technique. Visitors should have sterile gowns and masks and the number about the operating table should be limited.

Having discussed some of the complicating factors in the healing of wounds, our interest now concerns another serious and distressing complication with a high mortality and morbidity, wound disruption, dehiscence and eventration in abdominal surgery. Some may divide the complication into incomplete, where the skin or the skin and subcutaneous are intact, which generally results in a ventral hernia, or to complete separation of the abdominal wound known as dehiscence or evisceration. The etiology of the complication may be one or many and may occur after any type of incision.

One may divide the factors contributing to disruption, dehiscence, or eventration into:

1. Local
   (a) inadequate blood supply
   (b) infection
   (c) interposition of the omentum.
2. General
   (a) malnutrition
   (b) hypoproteinemia, most important (one series reported 50 per cent or low normal)
   (c) chronic anemia
   (d) massive recurrent hemorrhage, with or without shock
   (e) Vitamin C deficiency
   (f) malignancy
   (g) abnormal fluid and electrolytic balance.

To the operative period belong:

1. defective suture material
2. improperly placed suture
3. careless hemostatis
   (a) vessels only should be ligated and not tissues
4. idiosyncrasy to absorbable suture material
5. insecure closure—tissues may be too thin so the sutures tear out easily

To the postoperative period belong:

1. Disruptive forces that excessively increase abdominal pressure or those that periodically contract the abdominal wall, as violent straining by:
   (a) wretching
   (b) persistent or unrelieved singultous or hiccough
   (c) habitual sneezing
   (d) marked abdominal distention
   (e) coughing
   (f) straining at stool
   (g) sudden movements
2. Failure of healing of the peritoneum and posterior sheath
3. Necrosis of the tissues
4. Sutures rapidly absorbed
5. Knots becoming untied
6. Peritonitis with subphrenic irritation

Incidence

This varies according to the literature from .2 to 2 per cent.[11] Hartzell[5] reported an average of 1.83 per cent. C. W. Mayo[11] has recently reviewed the literature reporting over 1,400 cases of wound disruption. He divides his review of the Mayo Clinic from 1945 to 1949 as follows: on 7,200 cases of colon surgery an incidence of thirty-three cases or .46 per cent; for gastric surgery 5,500 cases with thirty cases or .55 per cent, for 7,600 operations on the biliary tract twenty cases or .26 per cent and no disruption in pelvic operations during the same period. Kohn and Briggs report a review of 7,647 operations with thirty-nine cases, an instance of .51 per cent. Undoubtedly, there are many cases, but like those to be reported tonight, they have not so far been included in the literature.

Wound separation may occur from the first to the nineteenth day[7] but it generally takes place from the fifth to the tenth, or an average of seven days.[3] The majority of the cases of the Mayo Clinic compare with the above figures.

Dehiscence may occur from infancy to the eighth decade with the majority of the cases occurring in the fifth to six decades. In one series, the ratio was eight males to one female, which may be explained by the many different activities in the male. Those we wish to report were in males only. There is no relation to the seasons of the year.

Mortality and Morbidity

Hartzell and Winfield,[5] in their review, report a mortality of 35 per cent, while the Mayo Clinic report is 18.1 per cent in the period of 1945 to 1949, and in Kohn and Briggs' series, 23 per cent. Our series, although a small number, showed no mortality. The lower mortality probably is due to chemotherapy, antibiotics, studies of the proteins, nasal and intestinal intubation.

The hospital stay is greatly prolonged and is generally three weeks or more, a costly item.

Anesthetics

In the repair of dehiscence, one should have premedication, Baird's solution, that is sodium pentothal and curare, administered by a skillful anesthetist for relaxation, to avoid rough handling and exposure.

Incisions

Longitudinal incisions show the highest incidence of this complication[11] especially in the upper quadrants. Undoubtedly, transverse or oblique incisions are less likely to have this complication. Kohn and Briggs[7] report that in thirty-nine eviscerations, of those with subcostal or transverse incisions 15 per cent eviscerated. There were five cases reported in this series of evisceration in acute appendicitis with McBurney's incision and infection.

Sutures and Drains

There are two schools of thought regarding absorbable and nonabsorbable suture material, each group claiming advantages and disadvantages. Some advocate catgut, while others prefer cotton, silk, and wire. Four of our patients had dehiscence with silk. We believe two important factors may be the use of atraumatic needles to close the peritoneum with accurate closure, and if silk is used, too much tension should not be used to approximate the edge of the wound, especially the fascia, as it may produce too much tension with ischemia of the tissues.

If drains are used, stab wounds are better inasmuch as they do not tend to weaken the wound.

Symptoms and Diagnosis

The patient may complain of a sensation of "something giving away." Sudden appearance of a large amount of serosanguinous drainage should make one suspicious of evisceration.

Intestinal obstruction may occur from the knuckling of the bowel in the area of dehiscence and may be the first symptom if the serosanguinous drainage is overlooked. There may be localized pain in the area of the incision and likewise shock may manifest itself.

Treatment

If the patient's condition warrants, resuture is advisable under Baird's anesthesia with aseptic technique using through and through silkworm or wire retention sutures tied over a gauze roll or rubber tubing. Some advocate resuturing if possible the layers with through and through silkworm gut.

Gastric and intestinal intubation should be instituted before, during, and following the operation to reduce the possibility of obstruction, regurgitation, tracheal aspiration, and pulmonary complications.

Blood or plasma transfusions are necessary in amounts sufficient to combat hypoproteinemia. A high protein diet with a caloric intake to 4,000 calories should be given when it can be tolerated. Likewise, amino acids may be given orally or parenterally.

If an operation cannot be tolerated, conservative measures are in order and under sodium pentothal and curare, the wound may be prepared aseptically, washing the coils of intestine with sterile saline and return them to the peritoneal cavity. Some advocate packing, while others recommend soft rubber drains which extend above and below to the outside of the wound. Dressings and a spica of adhesive is used from the gluteal folds to the axilla, remaining in place a period of two weeks or more.

One should bear in mind the complication of ileus and obstruction.

Case Reports

Case 1.—A white man, age twenty-three, 6 feet 2 inches in height, was admitted to the hospital on July 10, 1945, and operated upon that same day. The preoperative diagnosis was: "Severe Chronic Asthma, and Hay Fever and Acute Appendicitis." The operation was appendectomy for an acute suppurative appendicitis. The incision was a right lower rectus and the closure was by layers with silk for the fascia. During his convalescence he was subjected to severe asthmatic and hay fever attacks with little alleviation from medication or air conditioning. He eviscerated on the eleventh postoperative day. He was resutured with through and through silkworm gut sutures and silk was also used for portions of the rectus fascia. A drain was placed in the lower angle of the wound. His convalescence complicated by his allergy and an infected wound which finally healed and he was discharged on the fifty-sixth postoperative day.

Case 2.—A white man, aged forty-three, 5 feet 11 inches in height and weighing 194 pounds, was admitted to the hospital on December 28, 1945, with a diagnosis of subacute cholecystitis with stones. At operation, through a subcostal incision, a cholecystectomy was done with a stab wound drainage and the wound closed in layers with interrupted silk sutures. The pathological report was chronic cholecystitis with a large stone. On the fifth postoperative day, an acute respiratory developed, and on the seventeenth day he had an evisceration which was resutured. He was discharged from the hospital on the forty-first day, with a follow-up note two months later that the wound was well healed.

Case 3.—A white man, sixty-four years of age. 5 feet 10 inches in height and weighing 168 pounds, was admitted to the hospital on December 1, 1949, with a diagnosis of chronic cholecystitis with stones. A cholecystectomy, choledochostomy, and appendectomy was done through a high right rectus incision and a T tube was left in the common duct. The closure was by layers with interrupted silk sutures in the fascia and a stab wound for the T tube. Convalescence was complicated by acute emphysema, auricular fibrillation, and persistent hiccough probably due to vagus and phrenic stimulation. He had an incomplete evisceration on the fifth postoperative day which was treated conservatively by a strapping spica. He was discharged the nineteenth day by ambulance to his home.

Case 4.—A white man, fifty-five years of age, 5 feet 11 inches in height and weighing 198 pounds, entered the hospital on June 17, 1948, with a diagnosis of acute appendicitis and was operated upon the same day through a right lower rectus incision and a rupture found and removed. The wound was closed in layers with interrupted silk sutures in the fascia and without drains. On the third postoperative day a partial ileus developed which was relieved by intestinal intubation. An acute and severe emphysema followed. Dehiscence occurred on the thirteenth day and the wound was resutured by through and through heavy silk sutures. He was discharged on the forty-third postoperative day with the wound healed. Two months later the wound was competent.

Case 5.—A white man, aged thirty-nine, 6 feet in height and weighing 178 pounds, was operated upon June 21, 1949, for a right inguinal hernia, and the abdomen explored through a right lower rectus incision. Appendectomy was also done. On the ninth postoperative day a diagnosis of small bowel obstruction, bronchopneumonia and incomplete evisceration was made. Treatment consisted necessarily of strapping. He was discharged on the nineteenth postoperative day and reoperated on February 22, 1950, for a rather large ventral hernia, with fairly good results.

A review of some of the important features associated with the healing of wounds have been presented. A series of five cases of evisceration are reported. The importance of the early recognition of the complication and its high mortality, morbidity, and long hospitalization are emphasized. Pulmonary complications, severe straining of the wound by coughing, sneezing, vomiting, or abdominal distention, hypoproteinemia, lower Vitamin C, have been shown to be etiological factors in dehiscence and eventration. Our series shows an incidence of the complication of 0.5 per cent without mortality in this small series.

Two methods of treatment may be employed, resuturing with through and through sutures, or by layers, or a combination of both which is preferable. If this is not applicable, large adhesive spicas from the groin to the axilla may have to be employed. The mortality rate in evisceration has been markedly reduced, due to chemotherapy and antibiotics, gastric and intestinal intubation, improvement in the anesthetics and their administration, and a more comprehensive understanding of the hypoproteinemia and Vitamin C factors.

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Discussion

Dr. H. B. Zimmermann, Saint Paul: Dr. Hanson has competently presented the subject of wound healing, or rather lack of wound healing, and the causes of wound dehiscence. He divided the causes of wound dehiscence into two groups, mechanical and metabolic. I have at home a reprint from the *Saint Paul Medical Journal* of about 1901 or 1902, written by Dr. Edward Boeckmann. This is a very interesting discussion based on anatomical evidence, advocating transverse abdominal incisions to avoid wound disruption. I thought it interesting to bring to your attention the work of a member of this Society of many years ago—a master surgeon who made a real contribution to this subject.

Dr. Waltman Walters, Rochester: I want to say how glad I am to be here again. When I listened to the remarks tonight it brought back memories of eighteen or twenty years ago. I agree with them, and I think one of the nicest things about this Academy is a combination of the quality of the scientific material presented and the friendship of the men who are members. I have enjoyed listening to Dr. Hanson and I think he has done a good job in the presentation of this material. As I was listening to him I was wondering what constructive comment I could offer on the problem of preventing disruption of wounds. I have never been able to make up my mind as to what the real cause has been in any particular case. In all of the cases reported by Dr. Hanson the patients were seriously sick. All of them, with the exception of the last, had respiratory disturbances, all of them had a serious infection in the viscus operated on. If to infections of the respiratory tract and the coughing which results are added an increase in intra-abdominal pressure due to ileus, disturbances of metabolism from inability to eat or changes in metabolism and cachexia associated with carcinoma, it is clear that not one factor but a combination of factors is responsible. Furthermore, these factors act differently in different individuals.

While in Boston this fall at the meeting of the American College of Surgeons, I saw Dr. Lahey operate. I was interested in his ideas of suture for abdominal wounds. He stressed the fact that closure of an abdominal incision is just as important as the operation and that the surgeon should do it himself. He used fine stainless steel tension sutures and interrupted sutures of silk. He discussed the seriousness of the complications of disruption of a wound; still I think the mortality figures which Dr. Hanson presented, 33 per cent maximum and 25 per cent minimum, seem too high. I think in these days, indeed in the last five years, it is the experience of most surgeons that the risk from secondary closure of wounds is very low. I don't agree with Dr. Zimmermann that transverse incisions are the solution to the prevention of disruption of wounds.

Dr. E. M. Jones, Saint Paul: I am sure that any one who does any abdominal surgery has his share of eviscerations. There has been much discussion about this condition over the years, but no one has produced a satisfactory answer. This discussion recalls to my mind a statement made by Professor Tandler of Vienna. He was discussing the anatomy of procidentia, and, when he referred to the treatment, he pointed out that if there was one good operation to perform for the correction of this condition there would be no need for the many that are offered. I use the transverse incision a great deal, and it seems to me it is an easier wound to close than the longitudinal wound. In thinking back, I am of the opinion that our experience has not been as bad as some of the series reported by Dr. Hanson.

I was glad to hear the paper and enjoyed it very much.

Dr. F. E. B. Foley, Saint Paul: I was very much interested in this presentation of a very interesting subject. During the past three or four years I have had experience which is pertinent to the subject.

In the discussion thus far, there has been no reference to circulation and cardiovascular status as etiologic factors in dehiscence. I have an idea they may be important factors.

During the past two years I have employed ligation of the vena cava in connection with massive electrocoagulation to destroy deeply infiltrating bladder tumors. In my opinion, massive electrocoagulation with its extensive projection of lethal heat into the neoplasm and beyond is the most effective agent we have in dealing with deeply infiltrating bladder tumors. The trouble is the massive electrocoagulation to be effective must extend well beyond the bladder wall. Inevitably it will coagulate blood in pelvic vessels and lead to usually fatal pulmonary embolism in a large percentage of cases. Ligation of the cava makes impossible pulmonary embolism from the site of electrocoagulation. Among seven cases of cava ligation for this purpose, there were three cases of evisceration—none of them fatal.

An immediate temporary effect of cava ligation must be venous engorgement of tissues in which a lower abdominal incision is made as for bladder tumor. Perhaps the same phenomenon has something to do with the higher incidence of dehiscence with longitudinal incisions than with transverse incisions: the general course of the regional vessels is longitudinal; the closing sutures will embrace them if the incision is longitudinal and will go between them if it is transverse.

The chronic passive congestion of an impaired general circulation should have this same effect.

I would like to ask Dr. Hanson if, in his experience, the condition is more frequent in cases of impaired general circulation than in individuals with good hearts.

Dr. James A. Johnson, Minneapolis: There are three types of cases that I watch very carefully. One is the asthmatic. Not infrequently, asthma and the cough become so severe that the wound opens up. The second type of case is the one that has been depleted over a considerable period of time, especially advanced malignancies. The third case is long-standing jaundice. The interesting thing about these cases is that when the wound has been resutured the second time, practically all of them heal. I cannot remember of a single case that has eviscerated a second time in spite of the fact that the second suturing is certainly usually very crude compared to the first. Previously I have used catgut for suturing of wounds. Now I use silk. I do not believe it makes any difference.

Dr. William A. Hanson, closing: In closing, I wish to say that I appreciate being a member of the Academy and having been its president for the past year.

In reference to Doctor Foley's remarks, I believe the condition of the cardiovascular system has a definite bearing on the occurrence of evisceration. This was evident in Case 4, in which there was a marked lowering of the blood pressure during operation.

In Case 5, appendectomy was performed in addition to a right inguinal herniotomy, which emphasizes the old adage that multiple operations done at the same time increase the morbidity and mortality, and this in spite of antibiotic treatment.

To our secretary, Dr. Wallace Ritchie, for his excellent fulfillment of a task well performed, I wish to present this memento from the Executive Committee and myself, and with it, many thanks. (Dr. Ritchie was presented with a butane cigarette lighter.)

The meeting was adjourned.

Wallace P. Ritchie, M.D.
Secretary

Social Security Commissioner A. J. Altmeyer in a recent communication to Congress, stated that $14,736,000,000 of the reserve fund of the Social Security Administration is now invested in government securities, i.e., loaned to the Treasury for its general operations. In addition, a little less than half a billion ($413 million) was being held on hand in cash for current investment.

Total collections from January 1, 1937, the start of Social Security, to June 30, 1951, were $18 billion, with transfers and interest earned bringing the total income to $20 billion. Benefit payments accounted for $4,874,000,000 and administrative expenses $459,000,000. In other words, the Federal Government gives I.O.U.'s for surplus funds paid in on social security taxes for specific purposes which the government uses for other purposes.

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SEARLE RESEARCH IN THE SERVICE OF MEDICINE

✦ Reports and Announcements ✦

AMERICAN COLLEGE OF CHEST PHYSICIANS

Postgraduate Course.—The annual Postgraduate Course in Diseases of the Chest, sponsored by the Council on Postgraduate Medical Education and the New York State Chapter of the American College of Chest Physicians, will be presented at the Hotel New Yorker, New York City, November 12 to 17. This course will emphasize the recent advancements in the diagnosis and treatment of chest diseases. The course is open to all physicians, but the number of registrants will be limited. Tuition fee is $50; applications will be accepted in the order in which they are received. Applications should be sent to the American College of Chest Physicians, 112 East Chestnut Street, Chicago 11, Illinois.

Interim Session.—The Interim Session of the American College of Chest Physicians will be held at the Ambassador Hotel, Los Angeles, California, on December 2 and 3. On December 2 a scientific session will be presented sponsored by the California Chapter of the College, including round-table luncheon discussions and an x-ray conference. A banquet will be held in the evening. The Board of Regents of the American College of Chest Physicians will meet on December 3, as well as various councils and committees of the College.

Essay Award.—The Board of Regents of the American College of Chest Physicians offers a cash prize award of $250 to be given annually for the best original contribution, preferably by a young investigator, on any phase relating to chest disease. The prize is open to contestants of other countries as well as those residing in the United States. The winning contribution will be selected by a board of impartial judges and the award, together with a certificate of merit, will be made at the forthcoming annual meeting of the College. Second and third prize certificates will also be awarded.

All manuscripts submitted become the property of the American College of Chest Physicians and will be referred to the Editorial Board of the College journal, *Diseases of the Chest,* for consideration. The College reserves the right to invite the winner to present his contribution at the annual meeting. Contestants are advised to study the format of *Diseases of the Chest* as to length, form and arrangement of illustrations, to guide them in the preparation of the manuscript.

The following conditions must be observed: (1) Five copies of the manuscript, typewritten in English, should be submitted to the executive office, American College of Chest Physicians, 112 East Chestnut Street, Chicago 11, Illinois, not later than April 1, 1952. (2) The only means of identification of the author or authors shall be a motto or other device on the title page, and a sealed envelope bearing the same motto on the outside, enclosing the name of the author or authors.

LECTURE SERIES

A series of lectures and demonstrations in the biophysical aspects of virology will be given in Chicago by Dr. Max A. Lauffer, professor of biophysics at the University of Pittsburgh, on September 20, 21, and 22. These lectures are part of the Gehrmann lecture series sponsored by the Department of Bacteriology of the University of Illinois College of Medicine.

The following program will be presented:

Thursday, September 20

Lecture: Ultracentrifugation. 1:00 p.m., University of Chicago, Abbott Hall, 947 E. 58th St.

Demonstration: The use of centrifugation for preparation and characterization of viruses. 3:00 p.m. Abbott Hall.

Friday, September 21

Lecture: Electrophoresis. 1:00 p.m. North Amphitheatre, Presbyterian Hospital, 1753 W. Congress St.

Demonstration: The use of electrophoresis for purification and characterization of viruses. 3:00 p.m. Presbyterian Hospital.

Saturday, September 22

Lecture: Electron Microscopy. 9:30 a.m. University of Illinois Research and Educational Hospitals, 1835 W. Polk St.

Demonstration: The use of electron microscopy in the study of viruses. 11:00 a.m., Room 342, University of Illinois Dental-Medical-Pharmacy Building, 1853 W. Polk St.

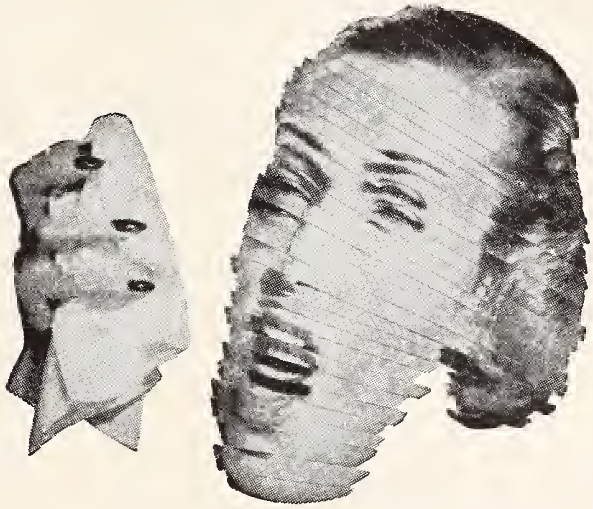
All interested are invited to attend the lectures. Because of space restrictions, however, the demonstrations must be limited to twenty. All who wish to attend the lectures may register by writing to Dr. J. E. Kempf, Department of Bacteriology, University of Illinois, 808 S. Wood St., Chicago 12, Illinois, before September 15.

MINNESOTA PUBLIC HEALTH CONFERENCE

Minnesota physicians, health officers, and other interested community persons will get together September 28 and 29 at the fifth annual meeting of the Minnesota Public Health Conference in Hotel Nicollet, Minneapolis.

Featured on the program of special interest to physicians will be a discussion Friday morning, September 28, of milk problems in Minnesota. A milk sanitarian from the U. S. Public Health Service will speak on "Guideposts for Milk Ordinances." Myron W. Clark, Commissioner of Agriculture, Department of Agriculture, Dairy and Food, will talk on the "Economic Value of High Quality Milk." Brucellosis will be discussed by Dr. Wesley Spink, University of Minnesota; J. S. Jones,

(Continued on Page 904)



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MINNESOTA PUBLIC HEALTH CONFERENCE

(Continued from Page 902)

State Farm Bureau, and Dr. Ralph West, representing the State Livestock Sanitary Board.

A special feature of the Friday luncheon meeting is a report on rabies in Minnesota, to be given by Dr. D. S. Fleming of the Minnesota Department of Health. The afternoon session of the physicians' and health officers' meeting will be held with environmental sanitation personnel from state and local health agencies throughout Minnesota. A discussion on municipal, rural and private water systems will be held to kick off the afternoon program. A discussion on fluoridization of water will also be a part of the opening discussion. Dr. Jan Tillisch of Rochester will discuss the medical problem of civil defense in the second session of the afternoon, while George Michaelson of the Minnesota Department of Health will discuss sanitation problems of civil defense. Problems of insect and rodent control will wind up the afternoon with a talk by Albert Buzicky, assistant state entomologist, and Dr. E. A. Kilbride of Worthington.

The annual banquet session of the conference will be held Friday evening with the principal address by Herman E. Hilleboe, native Minnesotan who is now Commissioner of Health in New York State.

Saturday morning a business session of the conference will be held, followed by a summary of the special interest group meetings held Friday. All physicians are urged to attend the conference, which brings together people interested in board problems of public health in Minnesota.

The conference also features a number of exhibits by state agencies interested in public health which present problems of vital interest to physicians in the state.

AMERICAN DERMATOLOGICAL ASSOCIATION

The American Dermatological Association is again offering a prize of $300 for the best essay submitted for original work, not previously published, relative to some fundamental aspect of dermatology or syphilology. The purpose of this contest is to stimulate younger investigators to original work in these fields.

Manuscripts typed in English with double spacing and ample margins as for publication together with illustrations, charts, and tables, all of which must be in *triplicate*, are to be submitted not later than December 1, 1951. The manuscripts should be sent to Dr. Louis A. Brunsting, Secretary, American Dermatological Association, 102-110 Second Avenue, Southwest, Rochester, Minnesota; those which are incomplete in any of the above respects will not be considered. Competition in this prize contest is open to scientists generally, not necessarily to physicians.

CONTINUATION COURSES

Bacteriology for Medical Technologists.—The University of Minnesota announces a continuation course in bacteriology for medical technologists on October 15 and 16. The course will be presented at the Center for Continuation Study and will be devoted to problems of the hospital bacteriological laboratory. Considerable emphasis will be placed on laboratory methodology, classification and identification of disease-producing agents, and some emphasis on clinical correlation and application.

The visiting faculty member for the course will be Dr. Morris Gordon, senior assistant scientist of the Mycology Laboratory, Communicable Disease Center, U. S. Public Health Service, Chamblee, Georgia. The remainder of the faculty for the course will be made up of members of the staff of the University of Minnesota.

This course is being sponsored by the Minnesota Society of Medical Technologists and given with the financial support of the American Society of Medical Technologists.

Symposium on Rheumatic Fever.—The University of Minnesota announces a symposium on rheumatic fever to be presented November 29, 30, and December 1. The symposium is being given with the sponsorship and financial support of the Minnesota Heart Association. Distinguished medical scientists who have accepted an invitation to participate include: Dr. T. Dunckett Jones, New York City; Dr. Ann Kuttner, New York City; Dr. Maclyn McCarty, New York City; Dr. George Murphy, New York City; Dr. Francis Schwentker, Baltimore, Maryland; Dr. Chandler A. Stetsen, Cheyenne, Wyoming; Dr. Charles Remmelkamp, Cleveland, Ohio; and Dr. Lowell Rantz, San Francisco, California. Members of the faculty of the University of Minnesota Medical School and the Mayo Foundation will also participate. All interested physicians, teachers, and investigators are cordially invited to attend. There will be no tuition nor registration fees.

Fracture and Traumatic Surgery.—The University of Minnesota will present a continuation course in fractures and traumatic surgery for general physicians and surgeons on November 8 through 10, 1951. The course will be conducted at the Center for Continuation Study and will emphasize the more frequent and practical problems encountered in practice. The speakers will consist of members of the faculty of the University of Minnesota and the Mayo Clinic.

KANDIYOHI-SWIFT-MEEKER SOCIETY

The Kandiyohi-Swift-Meeker County Medical Society Press Conference was held at 7:30 p.m. on July 13 in the Blue Wave Room of the Lakeland Hotel in Willmar. After a half-hour get-together, dinner was served to a total of fifty-three, including twenty-nine doctors of medicine, twenty-three of them Society members.

Following the dinner, all guests introduced themselves. Dr. R. K. Proeschel gave a few introductory remarks and introduced Mr. Manley Brist of Saint Paul, legal representative of the Minnesota Association, who gave a brief talk and asked for a general round-table discussion following the forthcoming talk by State Senator Faye Childs of Maynard.

Senator Childs gave a talk on "The Present-Day Dangers" in this country. Following his talk, on motion by Dr. Penhall, a standing vote of thanks was given Senator Childs for his enlightening presentation.

The following problems and questions were brought up and discussed at the Round-Table Discussion:

(Continued on Page 906)

for a sound mind and healthy body

plenty of citrus fruit

Diets restricted because of allergies, diabetes, ulcers, etc. are frequently low in vitamin C[1,3,5]—thus adding a nutritive deficiency to the existing condition.[8] In gastric and duodenal ulcers,[2] a subscorbutic state is particularly serious because it interferes with collagen formation and capillary integrity.[3] Florida orange juice alone—or with milk to prevent a possible "burning" sensation—is not only a palatable source of vitamin C, but a quick means for providing an energizing "lift"[5,7] produced by the easily assimilable fruit sugars.[6] Fortunately Florida orange juice is virtually non-allergenic.[4]

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REFERENCES:

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2. Dunnigan, W. M. et al: Ohio J. Sc. 44:123, 1944.
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5. Jolliffe, N. et al, ed.: Clinical Nutrition, P. B. Hoeber, 1950.
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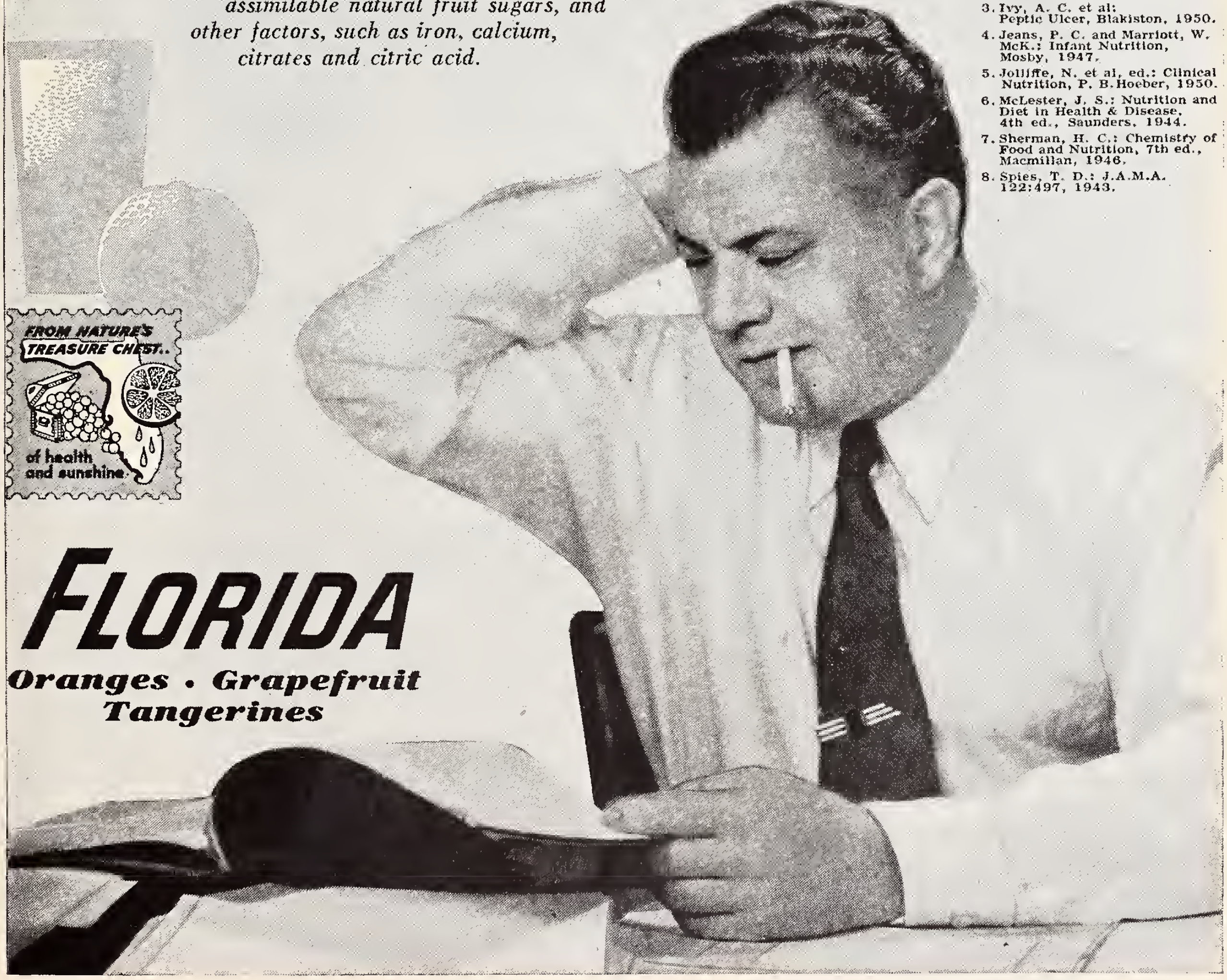

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Head Pain as a Diagnostic Lead

Frequently the presence of head pain is overlooked. The physician learns of it only if he has made an effort to elicit the information. Since the etiology of the pain is the basis of rational management, the patient should be warned against taking medication before diagnosis is made.

Friedman[1] deplores the tendency to call any chronic recurring headache migraine. Careful history-taking and full physical and neurological examinations are essential for accurate diagnosis. A good starting point is a description of the headache — its character, laterality, frequency and intensity.[2]

The following chart gives briefly the primary diagnostic leads and treatment for the most common types of headache.

Etiology of Headache	Primary Diagnostic Data	Primary Therapy
Inflammatory e.g., Meningitis Abscess	Inflammation of intracranial structures; fever; leucocytosis; bacteriologic diag.	Specific: sulfonamides and antibiotics. Symptomatic: analgesics.
Tumor	Pain varies as spinal press. changes; skull X-ray.	Specific: surgery. Symptomatic, analgesics &/or hypnotics.
Sinusitis	Sinus congestion and infection; cloudy X-ray.	Specific: antibiotics and drainage. Symptomatic: analgesics.
Hypertensive	Hypertension present but pain not related to b.p. level; Dihydroergotamine. relieves pain.	General hypertension therapy; sedation. Symptomatic: analgesics.
Migraine & other vascular headaches	Headache: recurrent, intense, throbbing. No organic causation; migraine in family; patient: energetic, perfectionist. Visual prodromata; g-i. upset during headache.	To abort attack: oral ergotamine plus caffeine. General: adjustment to minimize nervous stress.

Data here tabulated is from: Wolf, G., Jr.,[3] and Friedman, A. P.[4]

Cecil[5] ranks vascular headaches, e.g., migraine and tension headaches, as the most commonly encountered of all. Because of their functional nature and usual recurrence at frequent intervals, they present a long-term therapeutic problem.

Therapy is conducted along two lines:

1) Psychotherapy to reduce the frequency of attacks. This consists mainly of advice on emotional adjustment to stressful situations and guidance toward a good balance between work and relaxation.

2) Treatment of the distressing attack to prevent the usual period of incapacitation. Many investigators have reported that ergotamine preparations are effective for relief of the acute migraine attack in 80% of cases.[1,6] The drug is given immediately when an attack is approaching and dosage adjusted to the needs of the individual.

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KANDIYOHI-SWIFT-MEEKER SOCIETY

(Continued from Page 904)

1. Won't a compulsory insurance program do more for the people than the relatively high cost voluntary insurance?

2. The problem of the chronically ill in the middle income group.

3. Is the medical profession getting the most favorable presentation by the AMA advertising program?

4. The law of privilege—Mr. Brist brought out that in general there are only two privileges: (a) what the patient is/was suffering from, and (b) the treatment prescribed. The cause of death is not privileged.

Following a vote of thanks to the committee of Drs. Roger Michels, Lennox Danielson, R. P. Griffin and assistants, the meeting adjourned.

MINNESOTA SURGICAL SOCIETY

At a recent meeting of the Minnesota Surgical Society, held in Duluth, the following officers were elected: Dr. Albert Fritsche, New Ulm, president; Dr. Lyle J. Hay, Minneapolis, vice president; Dr. Owen G. McDonald, Duluth, secretary-treasurer.

AMERICAN MEDICAL ASSOCIATION

(Continued from Page 895)

secretary, Dr. E. S. Hamilton from the Board of Trustees, the Speaker and Vice Speaker, all ex officio.

The following were elected as Affiliate Fellows: Drs. David P. Duffie, Juliaca, Peru, S. A.; Dunbar Wallace Smith, Los Angeles; William H. Daughaday, St. Louis; Howard Stanley Hoyman, Urbana, Ill.

The House elected 490 physicians to Associate Fellowships.

Dr. Louis H. Bauer, newly elected President-Elect, addressed the House, expressing his appreciation of the honor, saying, "I feel very humble when I recall those who have preceded me in this office. A year from now, when I take up the torch . . . I hope I can keep it flaming as brightly as have my predecessors."

The House heard the report on American Medical Education Fund given by Dr. Elmer L. Henderson, president of the Foundation. Dr. F. F. Borzell presented, on behalf of the House, a purse, to Miss Hattie Niehoff, chief clerk, who, after having served for twenty-seven years, was retiring.

After giving a rising vote of thanks to Atlantic City, Dr. David Allman and Mr. Harold Baggs, the House adjourned at 3:05 p.m.

George A. Earl, Saint Paul
W. W. Will, Bertha
F. J. Elias, Duluth
J. Arnold Bargen, Rochester
Delegates to the American Medical Association

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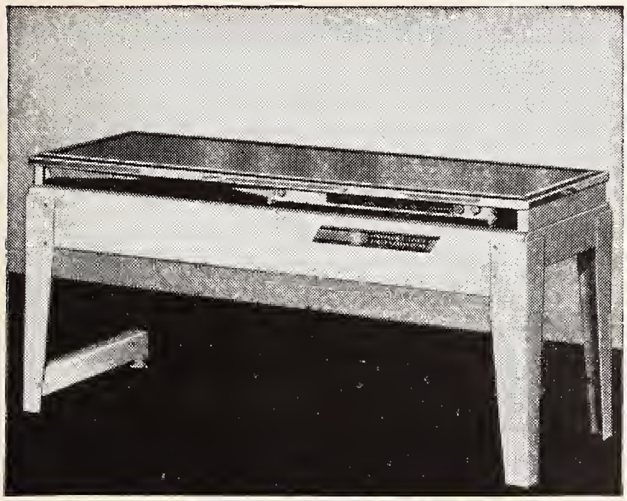
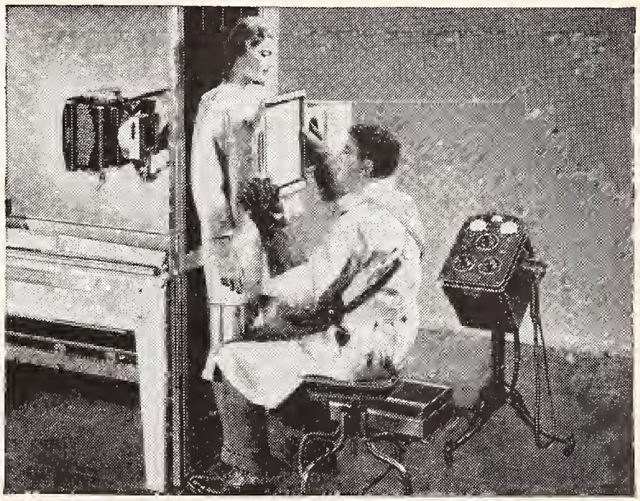


Horizontal Bucky Table — This is the simplest, the basic Maxicon unit. Practical for use in straight radiography, it can later be upgraded to provide one of many units to expand your facilities.



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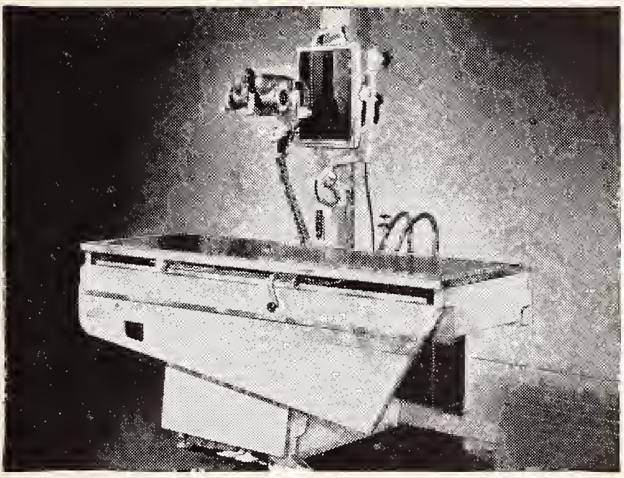
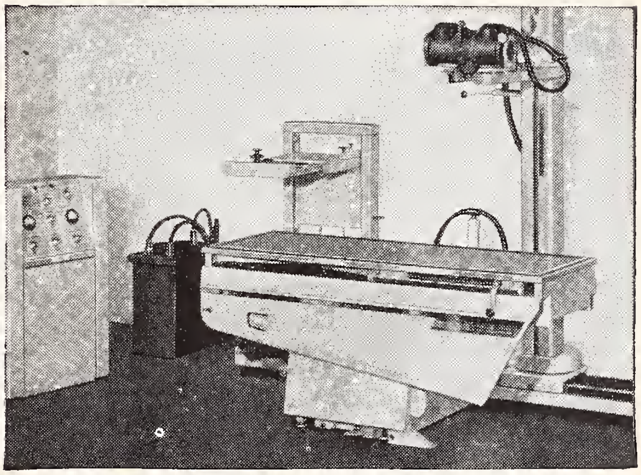


Single-Tube Combination — Another Maxicon unit acquired by augmenting the basic table. The table-mounted tube stand is a part of the table — angulates with it — is the only one that permits straight-line tube positioning. Instantly converted from radiography to fluoroscopy.



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Woman's Auxiliary

FALL CONFERENCE SLATED OCTOBER 12

Plans for the annual Fall Conference, to be held at the Hotel Lowry, St. Paul, on October 12, are nearly complete. Highlights of the all-day meeting include a School of Instruction, which will bring valuable information to members on all phases of auxiliary work, reports from various sections of the state on progress of auxiliary projects, and legislative information. The session will begin at 9:30 a.m. with the regular Board meeting.

Featured speaker at the one o'clock luncheon will be Mrs. Mason Lawson, third vice president of the Woman's Auxiliary to the American Medical Association, who will represent the national organization and present Minnesota members with news and program information on the national auxiliary scene.

Auxiliary members interested in attending this important meeting should make hotel and luncheon reservations as soon as possible with the office of the Minnesota State Medical Association, 496 Lowry Medical Arts Building, St. Paul.

AUXILIARY TRACES HISTORY FROM 1922

Mrs. E. M. Hammes, Sr.

Realizing that many auxiliary members are not familiar with the facts of the organizational history of their group, the national auxiliary requested that each state submit a brief history of the development of its auxiliary. Mrs. E. M. Hammes, 1950-1951 historian, prepared the history of the Minnesota group. This will be presented in three installments, beginning with this issue.

In the year 1922 the Minnesota State Medical Association felt the need for a woman's auxiliary to help them at conventions and to assist in extending the aims of the medical profession to other organizations. Their secretary, Dr. Carl Drake, asked Mrs. Archibald McLaren of St. Paul, to call together a meeting of doctors' wives with the purpose of organizing an auxiliary.

This meeting took place October 13, 1922, in Millard Hall, University of Minnesota.

Mrs. William Byrnes of Minneapolis made a motion that we form an auxiliary to the State Medical Association. Motion carried, and the following officers were elected:

President	Mrs. H. B. Sweetser, Minneapolis
First Vice-President	Mrs. H. P. Ritchie, St. Paul
Second Vice-President	Mrs. C. E. Bergquist, Duluth
Third Vice-President	Mrs. F. C. Rodda, Minneapolis
Recording Secretary	Mrs. Rood Taylor, Minneapolis
Corresponding Secretary	Mrs. Carl Drake, St. Paul
Treasurer	Mrs. Ernest Wanous, Minneapolis
Constitution and By-Laws	Mrs. William Byrnes, Minneapolis

The new State Auxiliary comprised the auxiliaries of (1) Hennepin County, which had been organized in 1910 by Mrs. Byrnes; (2) St. Louis County, organized in 1912; and (3) Ramsey County, organized in 1914.

The first county auxiliary from outside the three large cities to join was Washington, organized in June, 1923, with a paid membership of 10. Stearns-Benton Auxiliary was added in 1924.

The State Auxiliary continued to grow slowly and steadily until 1931, when it received an impetus, and took in 10 county auxiliaries in one year.

When the fourth largest city in Minnesota, Rochester, of Olmsted County joined the State Auxiliary, we gained an additional increase in membership of approximately 300.

The State Medical Auxiliary, begun in 1922, had 99 charter members. Now, in 1951, it has grown to a membership of 2,106, including members-at-large in the three remaining unorganized counties. It has 29 county auxiliaries out of a possible 32.

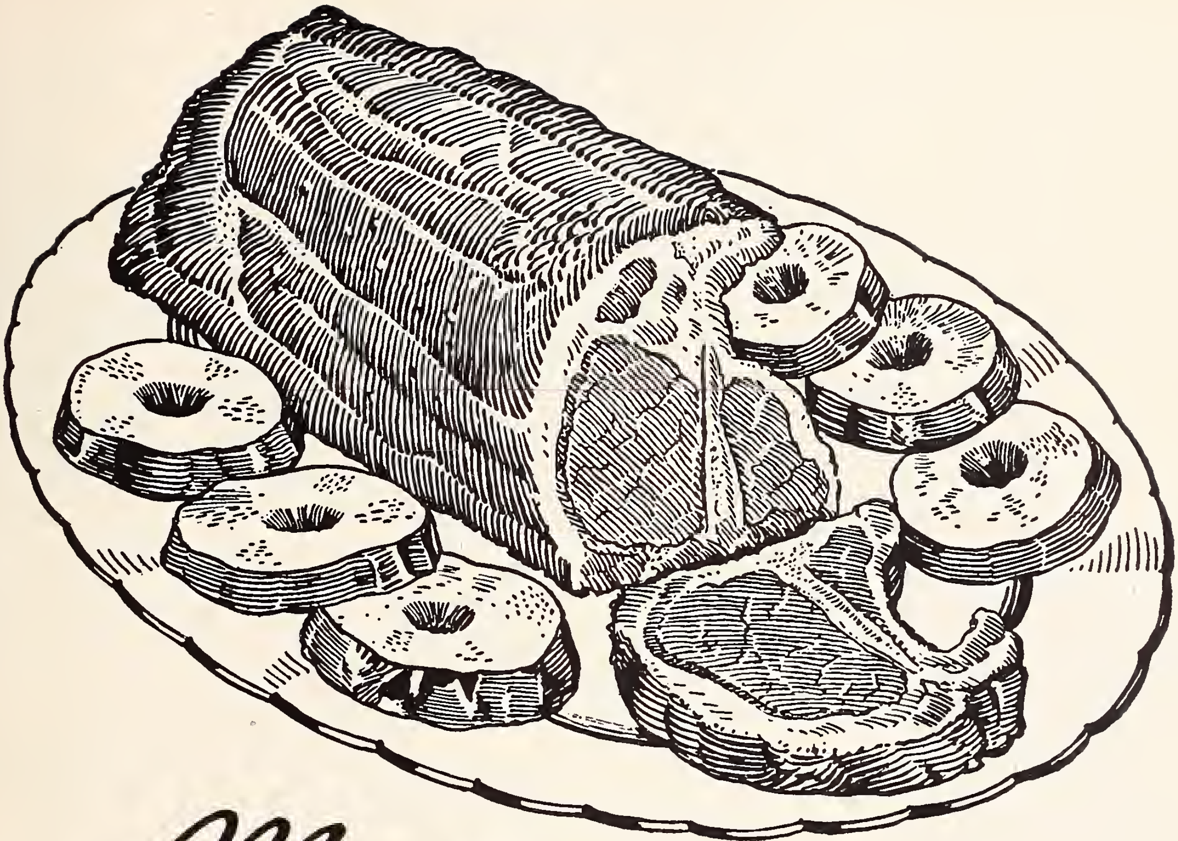
Before continuing, I think it would be fitting to pay a tribute to these first officers of the new auxiliary. Theirs was not the part of serving in a smoothly running organization. They had to work everything out the hard way, and how well they built is proven by our steady growth in membership, and our increasing usefulness to the State Medical Association.

I want to single out just two of these splendid women. First, Mrs. Byrnes of Minneapolis, as it was she who made the original motion to form the State Auxiliary. She was also appointed by the first president, Mrs. Sweetser, to draw up the Constitution and By-Laws. She served as state Parliamentarian many years and was Parliamentarian to the National Auxiliary during the term of office when Mrs. Blake was president in 1933.

Mrs. Byrnes founded Hennepin Auxiliary in 1910. In 1936, in Rochester, she was made Honorary President of the State Auxiliary. She was truly the grand old lady of our organization and we admire her not only for her great ability, but also for her kind and helpful personality.

The other early officer I want to mention is Mrs. H. P. Ritchie of St. Paul, second president of the Auxiliary, who was one of the best loved women in the society, always ready to help, gracious, and possessing a wonderful sense of humor. She eased the new auxiliary over our early mistakes, and did a great deal to promote friendship among the doctors' wives.

TB deaths among people over forty-five have been cut very little in recent years, and in some of the older age groups, deaths from the disease have actually increased.—Christmas Seal Health News Release.



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*McLester, J. S.: Protein Comes Into Its Own, J.A.M.A. *139*:897 (Apr. 2,) 1949

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In Memoriam

CARL F. AUSMAN

Dr. Carl F. Ausman of Saint Paul died following a stroke on May 23, 1951 at the age of sixty-seven.

He was born at Brandon, Wisconsin, June 9, 1883. After studying two years at Northwestern University, he obtained his M.D. degree at Northwestern University medical school in 1912. He interned at Mercy Hospital in Davenport, Iowa, and later took postgraduate work at Vienna and Budapest. He practiced six months at St. Martin, Minnesota, eight months at Barrett, Minnesota, two years at Deer Creek, Minnesota, two years at Bellingham, Minnesota, eleven years at Paynesville, Minnesota, and a year at Seattle before moving to Saint Paul.

Dr. Ausman was a member of the Ramsey County Medical Society, the Minnesota State Medical Association and the American Medical Association. He was also a member of the Masonic Blue Lodge of Paynesville and the Scottish Rite, Minneapolis.

Dr. Ausman is survived by his wife, Myrtle, and a son, Dr. Duane Ausman of Saint Paul. Two brothers and two sisters also survive him.

VERNE G. BURDEN

Dr. Verne G. Burden, former fellow in surgery of the Mayo Foundation, died on June 23, 1951, in Philadelphia, Pennsylvania.

Verne Burden was born January 17, 1895, at St. Mary's Pennsylvania. He received the degree of M.D. in 1919 from the University of Pennsylvania. He was an intern at the University of Pennsylvania Hospital from September, 1919, to October, 1921. He entered the Mayo Foundation as a fellow in surgery in October, 1921; he received the degree of M.S. in surgery in 1925 from the University of Minnesota and left the Mayo Foundation in July, 1925. For three years he was attending surgeon at the Philadelphia General Hospital after which he was attending surgeon at St. Joseph's Hospital in Philadelphia and consulting surgeon at the Andrew Kaul Memorial Hospital, St. Mary's. From April, 1940, until he entered active military service he was medical director of the Eastern State Penitentiary Hospital in Philadelphia.

Dr. Burden was a fellow of the American College of Surgeons and of the American Medical Association; and a member of the College of Physicians of Philadelphia.

HENRY C. DOMS

Dr. Henry C. Doms of Slayton, Minnesota, died July 17, 1951, of a heart affliction from which he had suffered the past two years.

Henry Doms was born at Woodstock, Minnesota, March 29, 1880. He was educated in the Pipestone county schools and high school. He obtained his M.D. degree from the Kansas City Medical College in 1905 and immediately took up practice at Holland.

On July 12, 1905, Dr. Doms and Anna Thiel of Pipestone were united in marriage. A son, Charles T., and a daughter, Elizabeth (Mrs. Lester Cox of Redwood Falls), were born to the union.

Dr. Doms established and, in partnership with Dr. Leon A. Williams, operated the Home Hospital of Slayton. In the early 1940's, he became a member of the International College of Surgeons.

During Dr. Doms' life, he was president of the Slayton Civic and Commerce Association, president of the Southwestern Minnesota County Medical Society and a Past Master of the AF and AM 199. He had also been president of the Murray County Public Health Association since 1929. He was a member of the Southwestern Minnesota County Medical Society, the Minnesota State Medical Association and the American Medical Association. Slayton loses one of its outstanding citizens in Dr. Doms.

ARTHUR W. ECKSTEIN

Dr. Arthur W. Eckstein of Grand Meadow, Minnesota, formerly a resident of North Mankato, died July 19, 1951, at the age of sixty-three.

Arthur Eckstein was born December 8, 1888, in New Ulm, Minnesota. He is survived by his wife, Opal, and a daughter, Mrs. Edward Cary of North Mankato.

GUY U. Y. FREDERICKSON

Dr. Guy Frederickson of Willmar was killed instantly in an automobile accident on July 4, 1951.

Guy Frederickson was born at Emmetsburg, Iowa, September 6, 1893. He attended Hutchinson Theological Seminary and Union College at Lincoln, Nebraska, where he obtained the degree of B.S. His medical degree was obtained from the College of Medical Evangelists at Los Angeles in 1924. He interned at Washington Sanitarium and Hospital at Tacoma Park, Washington.

Dr. Frederickson practiced at Lake Lillian, Minnesota, from 1926 to 1935. He was in medical practice with his wife, Alice, also a physician.

Dr. Frederickson was a member of the Kandiyohi County Medical Society, the Minnesota State Medical Association and the American Medical Association.

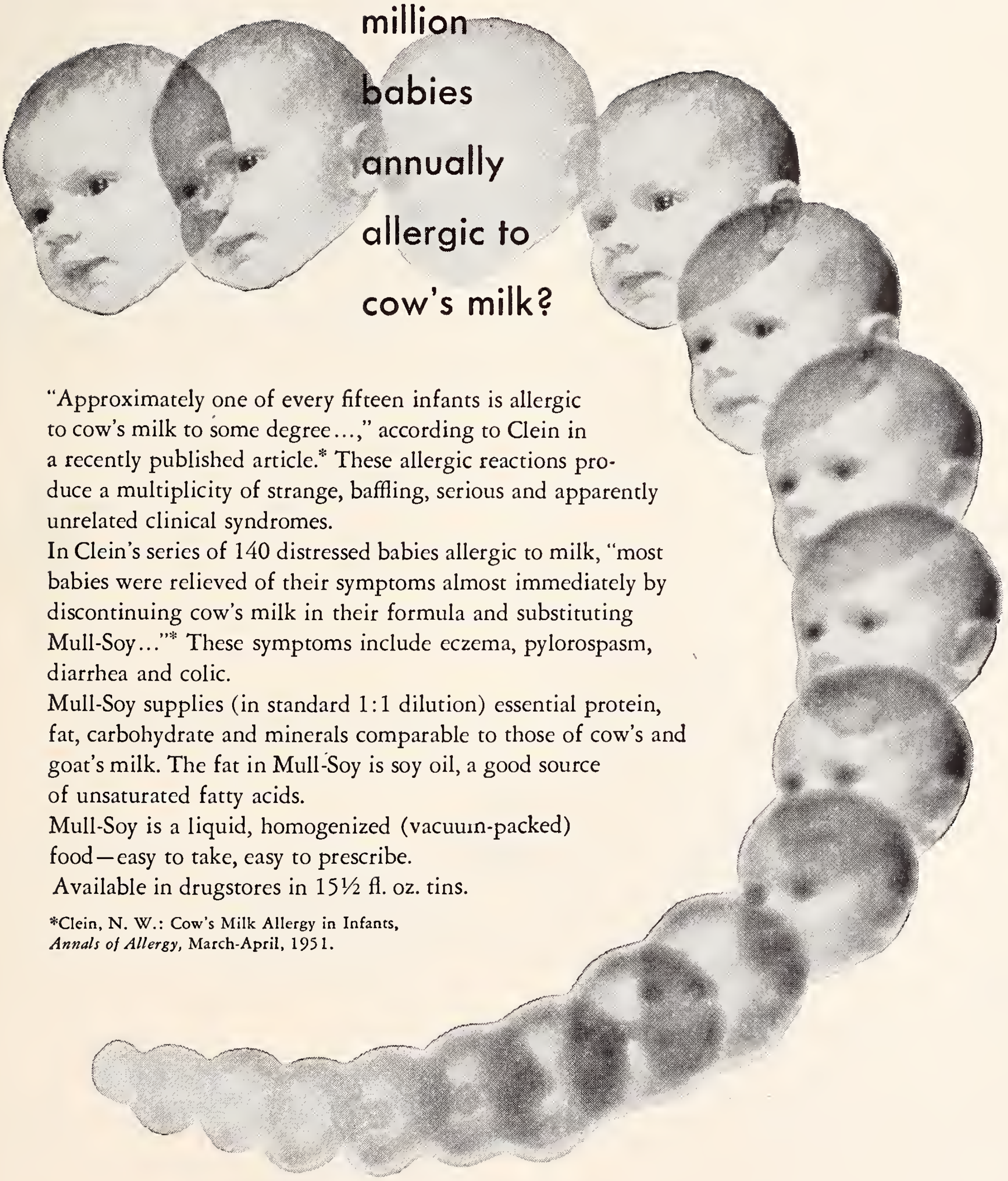
JOHN M. FALLON

Dr. John M. Fallon, former fellow in surgery of the Mayo Foundation, died on June 21, 1951, at his home in Shrewsbury, Massachusetts, of coronary insufficiency.

John Fallon was born September 17, 1901, at Worcester, Massachusetts. He received the degree of M.D. in 1923 from Harvard Medical School; was assistant in anatomy at Harvard Medical School from 1923 to 1925; was an intern at St. Vincent Hospital, Worcester, for seven months in 1924; was surgical intern at Peter Bent

(Continued on Page 912)

almost
a quarter
million
babies
annually
allergic to
cow's milk?



"Approximately one of every fifteen infants is allergic to cow's milk to some degree...," according to Clein in a recently published article.* These allergic reactions produce a multiplicity of strange, baffling, serious and apparently unrelated clinical syndromes.

In Clein's series of 140 distressed babies allergic to milk, "most babies were relieved of their symptoms almost immediately by discontinuing cow's milk in their formula and substituting Mull-Soy..."* These symptoms include eczema, pylorospasm, diarrhea and colic.

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Mull-Soy is a liquid, homogenized (vacuum-packed) food—easy to take, easy to prescribe.

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*Clein, N. W.: Cow's Milk Allergy in Infants, *Annals of Allergy,* March-April, 1951.

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JOHN M. FALLON

(Continued from Page 910)

Brigham Hospital, Boston, from February, 1925, to July, 1926, and surgical resident at St. Vincent Hospital from July to December, 1926. He entered the Mayo Foundation as a fellow in surgery on January 1, 1927; was appointed first assistant in surgery on January 1, 1929, and left the Mayo Foundation on April 1, 1929, after which he practiced surgery at the Fallon Clinic in Worcester.

Dr. Fallon was a fellow of the American College of Surgeons, and of the American Medical Association, a member of numerous other medical and scientific organizations and a member of a number of cultural societies.

Dr. Fallon was president for 1950-1951 of the Alumni Association of the Mayo Foundation.

OLIE E. HAGEN

Dr. Olie E. Hagen, a practitioner at Butterfield, Minnesota, since 1903, passed away July 16, 1951. He was seventy-nine years of age.

Olie Hagen was born in Hassolgn, Norway, December 6, 1871. He received his preliminary education at Oslo and came to America at the age of nineteen and lived at Vermilion, South Dakota.

He obtained his medical degree from the College of Physicians and Surgeons at Chicago in 1903. In 1904, he married Nina Hillestad whom he had met at the University of Chicago and who survives him.

In 1907, Dr. Hagen took postgraduate work at the Illinois School of Electrotherapeutics and X-Ray and in 1912 at the Chicago Polyclinic.

He was a member of the Watonwan County Medical Society, the Minnesota State Medical Association and the American Medical Association.

On November 16, 1947, Dr. Hagen was honored by the community in which he lived with a special "Dr. Hagen Day" at the local high school auditorium which was filled to overflowing for the occasion, a testimony of the high esteem in which he was held.

RUTH (VORIES) HECK

Dr. Ruth (Vories) Heck, former fellow in pediatrics of the Mayo Foundation, died in Rochester, Minnesota, on June 18, 1951.

Mrs. Heck was born July 6, 1893, at Pueblo, Colorado. She received the degree of B.S. in 1915 from Simmons College and she attended the University of Colorado from 1921 to 1923. She received the degree of M.D. in 1926 from the University of Minnesota and interned at the Cincinnati General Hospital at Cincinnati, Ohio, from July, 1925, to July, 1926. She entered the Mayo Foundation as a fellow in pediatrics in October, 1926, and left the Mayo Foundation in April, 1928. She was married to Dr. Frank J. Heck on May 26, 1928.

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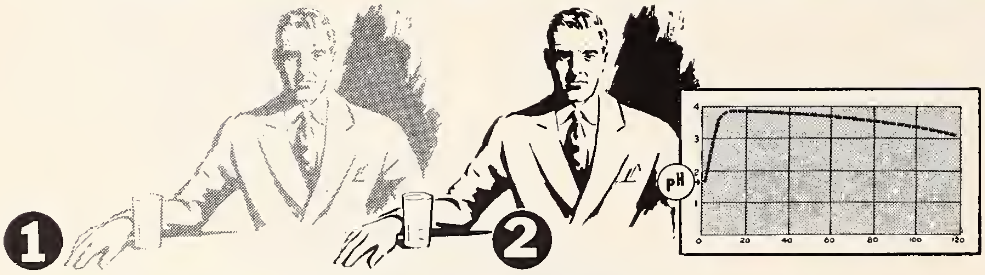
for the **ULCER PATIENT...**

DOUBLE COMFORT



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The tablet material (2 gm. equivalent to 30.8 grains Doraxamin) was added to 150 cc. artificial gastric juice and stirred at 37 degrees C. Every 10 minutes there was removed 20 cc. of the mixture which was replaced by 20 cc. of fresh artificial gastric juice. At regular intervals the pH of the mixture was determined with a Beckman pH meter.

FOR THE TREATMENT of peptic ulcer and hyperacidity, the market has long afforded neutralizing agents which are satisfactory to a degree. Frequently, however, a dosage sufficient for prompt, lasting pain relief brings in its wake a discouraging acid rebound.

Doraxamin brand of dihydroxy aluminum aminoacetate rules out this reaction. Because it is a chemical combination of aluminum with glycine, one of the amino acids, it provides both rapid acid neutralization by the amino acid and a secondary prolonged buffering of acid by the decomposition of the aluminum salt of the glycine.

Doraxamin raises the pH of artificial gastric juice to approximately 3.9 in ten minutes, and maintains a pH of above 3.0 for two hours. Repeated tests have shown conclusively that, even when Doraxamin is given in excess, the pH never reaches a maximum of more than 4.5. There is, therefore, no danger of alkalosis and no acid rebound.

References:
1 Krantz, Kibler and Bell: "The Neutralization of Gastric Acidity with Basic Aluminum Aminoacetate," J. Pharmacol, and Exper. Therap., 82:247 (1944).
2 Paul, W. D., and Rhomberg, C.: "Medical Management of Uncomplicated Peptic Ulcer," J. Iowa M. Soc. 35:167-85 (1945).
3 Holbert, J. M., Noble, Nancy, and Grote, I. W.: J.A.Ph.A., Scientific Edition, 36:149 (1947).
4 Holbert, J. M., Noble, Nancy, and Grote, I.W.: J.A.Ph.A., Scientific Edition, 37:292-294 (1948).

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CARL J. LIND

A pioneer Minneapolis physician with a distinguished record of over fifty-five years of active practice in the city until the day of his death, July 21, 1951, Dr. Carl J. Lind, Sr., attended as many as three generations of patients in a family. He was born December 6, 1871, and came to Minnesota as a youth from Ljunga, Smaland, Sweden.

He early studied pharmacy and became a registered pharmacist, maintaining his interest throughout his life as a member of the Minneapolis Veterans Druggists Association and the American Pharmaceutical Association.

Awarded the Doctor of Medicine degree from Hamline University, magna cum laude, in 1897, he held the rank of professor of Materia Medica and Therapeutics at Hamline from 1898-1905. A staff member of the Minneapolis General Hospital and the Swedish Hospital, he served as Chief of Staff at the Swedish Hospital for a number of years.

In 1947 he was honored by an award from the Minnesota State Medical Association for fifty years of honorable service to his profession.

For thirty-five years his offices were at Cedar and Riverside, about the South Side State Bank Building; for the past twenty years, in the Lind Building, 2630 East Twenty-fifth Street.

Dr. Lind was one of the founders of the Minnehaha State Bank and built and owned the original building on 27th Avenue, and 25th Street in 1910. He was elected to the Board of Directors in 1913 and served continuously from 1913 to 1951 as a member of the Board of Directors of the bank which in 1945 became the First Minnehaha National Bank located at Lake Street and 27th Avenue.

His immediate survivors include a son and daughter-in-law, Colonel and Mrs. Carl John Lind, Jr., U. S. Medical Corps, and Michael Lind, aged five, a grandson, all of Fort Sam Houston, Texas; and a daughter, Melva Lind, Dean of Miami University, Oxford, Ohio.

Dr. Lind was a member of the Hennepin County Medical Society, the Minnesota State Medical Association, and the American Medical Association. He was also a member of Joppa Lodge, No. 300, AF and AM of Minnesota.

JOHN W. OLSON

Dr. John W. Olson, for the past fourteen years a practitioner in Minneapolis, died August 1, 1951, at the age of seventy-six.

Dr. Olson was born in Sweden, August 10, 1874. He obtained his medical degree from the University of Minnesota in 1900 and interned at the City and County Hospital in Saint Paul. He practiced for five years at Cokato, Minnesota, before moving to Minneapolis

Dr. Olson is survived by his wife, Huldah; a daughter, Ruth; a brother, Dr. O. A. Olson of Minneapolis, and two sisters, Mrs. Louis Sundeen of Kerkhoven, Minnesota, and Mrs. Carrie Dahlgren of Winnipeg.

C. R. SANBORN

Dr. C. R. Sanborn, a former Minneapolis physician, died at his home in Carmel, California, August 10, 1951, at the age of sixty-eight.

Dr. Sanborn was born in Faribault, October 15, 1883. He obtained his M.D. degree from the University of Minnesota in 1907 and practiced in Parkers Prairie and Bemidji before locating in Minneapolis. He moved to Carmel fifteen years ago and practiced in Oakland until his retirement in 1945.

He was a member of Zeta Psi academic fraternity and Nu Sigma Nu medical fraternity. He was also a member of the Minnesota "M" club.

He is survived by his wife, Annetta, and two brothers, G. W. Sanborn of Staples and R. E. Sanborn of Bemidji.

FREDERICK H. SCOTT

Dr. Frederick H. Scott, a teacher of physiology at the University of Minnesota Medical School from 1908 until his retirement in 1944, died of a heart ailment July 21, 1951, at his summer home at Gull Lake, Minnesota.

Frederick Scott was born in Toronto, August 19, 1876. He studied for his doctor of medicine and doctor of physiology degrees at the University of Toronto and the University of London.

He joined the faculty of the University of Minnesota medical school in 1908 as assistant professor of physiology, taking over much of the lecturing formerly done by Dr. Richard Olding Beard. In 1919, he became a professor of physiology.

Dr. Scott is survived by his wife, Eleanor; a son, Frederick O. Scott of Washington, D. C., and one granddaughter.

Dr. Scott had won the admiration and affection of the hundreds of graduates of the University of Minnesota Medical Schools of recent years.

GILBERT SEASHORE

Dr. Gilbert Seashore, coroner of Minneapolis for thirty-four years before his retirement December 31, 1942, died August 1, 1951. He was seventy-seven years of age.

Dr. Seashore was born at Dayton, Iowa, July 14, 1874. He attended Gustavus Adolphus College at St. Peter, Minnesota, where he graduated with a B.A. degree in 1896. He studied medicine for two years at the University of Iowa and two years at the University of Minnesota where he obtained the degree of M.D. in 1902. His internship was served at Swedish Hospital, Minneapolis. In 1907, he took postgraduate work in Vienna.

In 1908, a group of friends urged him to file for county

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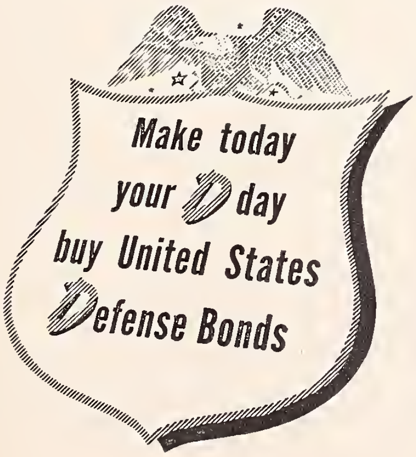
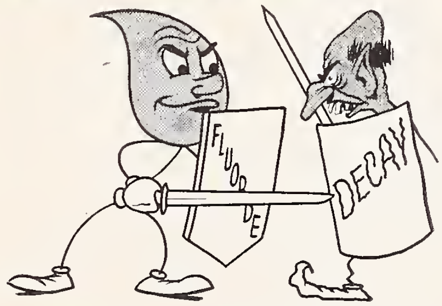
coroner. During his thirty-four years as coroner he, personally or through deputies, investigated more than 24,000 murders, suicides or fatal accidents of all kinds.

Dr. Seashore is credited with having established numerous reforms in office such as a system for protecting property of the dead and recording deaths which have been copied elsewhere.

Surviving Dr. Seashore are his wife, the former Signa Blomquist, whom he married in 1917, and two daughters, Ruth and Mrs. Marian Seashore Segerstrom, both of Minneapolis.



Important News!



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Communication

BUTTER VS. OLEOMARGARINE

To the Editor:

As chairman of the Minnesota State Medical Association's Committee on Public Health Education, I am concerned about an editorial that appeared in the last issue of Minnesota Medicine. I cannot believe that this editorial—entitled "Oleomargarine Discriminated Against"—is a true expression of the opinion held by all Minnesota physicians.

Minnesota has traditionally ranked high among other states for the general level of good health enjoyed by its citizens. Part of the credit for this excellent record devolves on the extraordinary nutritional facilities offered by this state. Physicians have tried to do their part in urging an appreciation of natural food values, pointing out to the public that adequate quantities of such basic foods as milk, eggs, butter, meat—to cite a few examples—will go far toward building up health defenses.

When we have done so well with utilizing natural foods, it seems pointless to urge the substitution of synthetic foods in the diet. Agitation for oleomargarine reminds me of the sales talk a customer gets in an understocked store, where the customer is denied his choice of purchase, and merchandise described as "just as good" is urged upon him. Fortunately, Minnesota's rich farm lands provide us with the merchandise of our choice and there is no reason for us to be content with substitute, "just as good" products.

Good nutrition, the well-developed economy of our dairy state, our own tastes for wholesome, natural foods—these are served by the production of butter.

If the oleomargarine interests want to urge a butter substitute on American consumers, or if the people, themselves, demand it—that is a different matter. But I do not believe that it is the duty of physicians to campaign for a butter substitute when there is an abundance of the real thing available.

A physician has a right to compare, in print, the nutritional qualities of butter and oleomargarine, but I do not think that this editorial should have been offered to readers of Minnesota Medicine as the expressed opinion of all Minnesota doctors until it was proved to contain the opinion of all Minnesota doctors. Certainly it is not my opinion, nor the opinion of many physicians with whom I have discussed the matter since publication of the article.

August 24, 1951 F. J. Elias, M.D.

Editor's Note: The reader's attention is called to the fact that editorials published in Minnesota Medicine never purport to be the opinion of members of the Minnesota State Medical Association nor of all Minnesota doctors. They voice the opinion of the writer, who may be either the Editor or some other person, in which case the name or initials of the writer are usually appended.

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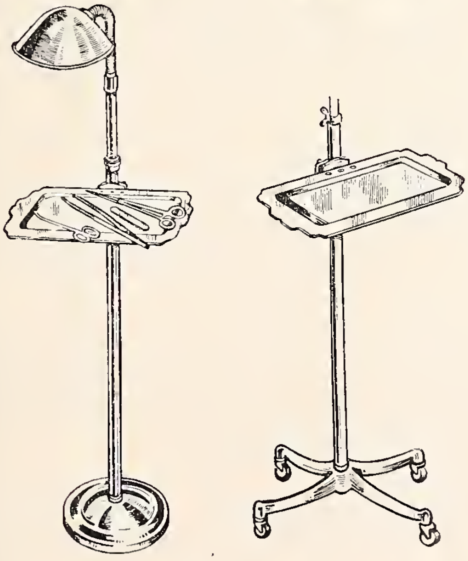

The perfect accessory for holding instruments and many miscellaneous articles. Practical—Attractive—Convenient. Easily attached by hand —no tools required.

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Of General Interest

The Medical School of the University of Minnesota received for research purposes during the fiscal year 1949-1950, a total of $1,320,485. Of this amount, $862,141 was received from the United States Government, $75,000 from the Legislature of the State of Minnesota, and $383,344 from private sources.

* * *

Dr. M. J. Shapiro, formerly of Minneapolis, has announced the opening of offices for the practice of internal medicine at 405 North Bedford Drive, Beverly Hills, California. He is specializing in diseases of the heart.

Formerly associated with Dr. Shapiro, **Dr. R. J. Weisberg** has announced that he is continuing Dr. Shapiro's practice, occupying the same offices which they formerly shared at 620 Medical Arts Building, Minneapolis.

* * *

Dr. John H. Allen, formerly of Saint Paul, became associated with **Dr. L. G. Smith** of Montevideo on July 1 for the general practice of medicine and surgery. Dr. Allen was a graduate of the University of Minnesota Medical School in 1950 and recently completed his internship at Ancker Hospital, Saint Paul.

* * *

Dr. Fred L. Bregel, St. James, escaped with only a few scratches when his car left the highway near St. James late in July and overturned in a ditch.

* * *

Formerly of Saint Paul, **Dr. John C. Brown** has retired from the practice of medicine and has moved to Los Gatos, California, where his son, Dr. Gordon A. Brown, is now practicing.

* * *

A Federal Trade Commission ruling against the makers of "Ovaltine" requires that the product no longer be advertised as correcting nutritional deficiencies, anemia or deficiency diseases or developing endurance, strength, stamina, energy or muscles, or that "Ovaltine" is needed in addition to a well-planned or well-balanced diet.

* * *

Dr. Franklin Neva, a former resident of Cloquet and a graduate of the University of Minnesota Medical School, has received a two-year fellowship in Boston from the National Foundation for Infantile Paralysis. Dr. Neva interned at Boston City Hospital, then served in the Navy, stationed at Cairo, Egypt, where he did research on typhoid and paratyphoid fever. Before receiving the infantile paralysis fellowship, he did research work at Harvard for the American Medical Research Foundation.

* * *

After three years of association with the Bemidji Clinic, **Dr. Kenneth J. Johnson** left late in July to accept a position with the Quain and Ramstad Clinic in Bismarck, North Dakota. Dr. Johnson will specialize in the practice of internal medicine.

* * *

Dr. John H. Rosenow announced on September 1 the opening of offices at 1818 Medical Arts Building, Minneapolis, for the practice of general surgery.

* * *

After returning from more than two years of service in the Army, of which twelve months were spent in Korea, **Dr. Thomas S. Kemp** of Mankato, has been awarded a three-year fellowship at the University of Pennsylvania Hospital, Philadelphia. Dr. Kemp was sent to Korea from Japan about three weeks after the war broke out, and he spent a year working in a mobile surgical hospital directly behind the fluctuating front.

* * *

Dr. Herbert W. Johnson has opened an office at 755 Lowry Medical Arts Building, Saint Paul, for the practice of internal medicine with the subspecialty of endocrinology and diabetes. A graduate of the University of Minnesota Medical School in 1945, Dr. Johnson interned at Minneapolis General Hospital and served in the Army before taking a fellowship at the Mayo Foundation. He began practice in Saint Paul on July 1, 1951.

* * *

A revised catalogue of motion pictures available through the Committee on Medical Motion Pictures and a revised list of "Sources of Motion Pictures on Health" can now be obtained. The catalogue lists sixty-two available 16 mm. films, most of which are at the professional level. Fourteen are suitable for showing to lay groups. The newly revised list includes addresses of major loan and rental film libraries, state health departments' film libraries and references to printed lists. Both the catalogue and the list are available from the Committee on Medical Motion Pictures, American Medical Association, 535 North Dearborn Street, Chicago 10, Illinois.

* * *

After July 15, **Dr. H. P. Wendt,** who had been associated with the Johnson Clinic at Thief River Falls, established his own office in temporary quarters in the city. He announced that he planned to move into newly remodeled offices in the fall.

* * *

Dr. Alfred Sherman, formerly with the Veterans Hospital, Minneapolis, has moved to Albert Lea and has become associated in practice with a clinic there.

* * *

A testimonial dinner honoring **Dr. John D. Camp,** Rochester, was given by the Minnesota and North Dakota Radiological Societies in Saint Paul on July 21. Dr. Camp, it was announced, was leaving Minnesota to go into private practice at Los Angeles, California.

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The American Cancer Society, in its annual report, indicated, among others, the following allocations of funds: Memorial Center, New York, $397,026; University of Chicago, $309,171; Columbia University, $203,574; Harvard University, $191,305; Institute for Cancer Research, Pennsylvania, $184,923; Massachusetts General Hospital, $114,480, and University of Minnesota, $109,582.

* * *

Dr. Harold A. Kaplan, formerly of the Veterans Hospital, Minneapolis, has opened offices for the practice of internal medicine at 2945 Dakota Avenue, St. Louis Park (Minneapolis suburb).

Dr. O. B. Fesenmaier, New Ulm, discussed the use of hypnosis in medical practice at a meeting of the Junior Chamber of Commerce in New Ulm on August 13.

* * *

The official opening of a new clinic in Virginia and a change in its official title to the **East Range Clinic** were announced on July 31. The new clinic building, which at the time of the announcement had been in use for several weeks, was formrly known as the Ewens-Malmstrom Clinic. The clinic is under the control of More-Ewens Clinic, Inc., which also operates the More-Ewens Clinic in Eveleth in conjunction with the More Hospital.

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Following a wedding trip in northern Minnesota, **Dr. and Mrs. Charles D. Knight** (Dorothy Corinne Willius) have made their home in Rochester, where they were married this summer. Mrs. Knight is the daughter of Dr. and Mrs. Fredrick A. Willius of Rochester. Dr. Knight, who completed a three-year fellowship in surgery at the Mayo Foundation, has begun a first assistantship in surgery at the Mayo Clinic.

* * *

The House of Representatives by a 318 to 45 vote overrode President Truman's veto of **H.R. 3193,** providing increased pensions for disabled veterans requiring attendance of other persons, including nurses. The bill applies only to disabled veterans whose disability is not service connected. The President, in vetoing the measure reiterated his opposition to any new legislation giving assistance for non-service disabilities. Before overriding the veto, the House received a report from its Veterans Affairs Committee unanimously advocating such a step. The President is to be congratulated on vetoing this bill. This legislation is another example of handouts for special groups with sufficient political pressure.

The House of Representatives Appropriation Committee has cut Civil Defense Administration's 1952 budget request for $535 million by 88 per cent, to $65,255,000. National Science Foundation's $14 million request was cut by 98 per cent, to $300,000. A Bureau of Narcotics' request for $400,000 to hire thirty-two more agents was cut by 40 per cent, to $250,000.

* * *

Dr. F. M. McCarten and **Dr. R. E. Carlson** opened new offices in the Cosmopolitan Bank Building in Stillwater on August 20. The offices comprise seventeen separate rooms, including a reception room, three private offices, two examining rooms, x-ray laboratory, metabolism and electrocardiograph room, laboratory, diathermy room and two rooms set aside for infants. The attractive exterior is done in Los Rancho brick and redwood in natural finish.

* * *

Dr. A. L. Arends has moved from Cokato and has opened offices for the practice of medicine at 620 Sixty-sixth Street South, Minneapolis.

* * *

When **Dr. John V. Carlson** and his bride, the former Olivia Kjelland, returned to Westbrook late in July, following their marriage in Valley City, North Dakota, residents of the city and the surrounding countryside gathered to welcome the couple. Dr. and Mrs. Carlson were taken on a parade through the town, after which they were serenaded at a special band concert.

* * *

Dr. John W. Schut, of the division of neurology at the University of Minnesota Hospitals, has joined the staff of the Anoka State Hospital and will begin work there on October 1.

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Dr. John D. Tobin, Minneapolis, has been elected a fellow of the American Academy of Pediatrics.

* * *

Dr. William L. Benedict, Rochester, has been notified that he will be given an honorary life fellowship in the American Academy of Optometry. The award will be presented on December 10 at the organization's annual meeting in New York. Dr. Benedict, who retired in March, 1950, as head of the section on ophthalmology at the Mayo Clinic, will be the fifth man so honored in the twenty-year history of the optometry group.

* * *

It was announced in Wabasha on July 20 that **Dr. R. F. Meincke**, who had just completed his internship at General Hospital, Minneapolis, was making arrangements to begin his practice at North Bend, Oregon.

* * *

Dr. J. E. Indihar became a staff member of the Shipman Hospital at Ely on July 16. A graduate of the University of Minnesota Medical School, Dr. Indihar served his internship at St. Mary's Hospital, Duluth.

* * *

Dr. Oscar Kozberg, formerly of Little Rock, Arkansas, returned to the Moose Lake State Hospital as assistant superintendent on August 1. He was a member of the staff from 1938 to 1941, when he entered military service. After leaving the armed forces, he became superintendent of a state hospital at Little Rock.

* * *

Dr. R. E. Anderson, a physician at Willmar for the past thirty years, has sold his practice to **Dr. Lawrence J. Opsahl**, formerly of Saint Paul. Dr. Anderson announced that he planned to move to Rock Island, Illinois.

Dr. Opsahl, a graduate of the University of Minnesota Medical School, interned at Minneapolis General Hospital, completed a residency at the Northern Pacific Hospital, Saint Paul, and served in the Navy for more than three years.

* * *

Dr. Philip Hursh, after two years of association in practice with Dr. Hugh D. Patterson in Slayton, announced on August 16 that he planned to leave on September 5 to become a staff member of the University of Minnesota Health Service.

A graduate of the University of Minnesota Medical School in 1943, Dr. Hursh interned at Queen's Hospital, Hawaii, and then served in the Army in the Pacific Theater. Following his military service, he took a year of postgraduate training at Asbury Hospital, Minneapolis. He then worked at the University Health Service before moving to Slayton in July, 1949.

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Surgical Technic, Surgical Anatomy and Clinical Surgery, four weeks, starting October 8, November 5.
Surgical Anatomy and Clinical Surgery, two weeks, starting September 24, October 22, November 19.
Surgery of Colon and Rectum, one week, starting September 17, October 15.
Esophageal Surgery, one week, starting October 15.
Thoracic Surgery, one week, starting October 8.
Gallbladder Surgery, ten hours, starting October 22.
Breast and Thyroid Surgery, one week, starting October 1.
General Surgery, one week, starting October 1.
Fractures and Traumatic Surgery, two weeks, starting October 8.
GYNECOLOGY—Intensive Course, two weeks, starting September 24, October 22.
Vaginal Approach to Pelvic Surgery, one week, starting September 17, November 5.
OBSTETRICS—Intensive Course, two weeks, starting November 5.
MEDICINE—Intensive General Course, two weeks, starting October 1.
Gastroenterology, two weeks, starting October 15.
Electrocardiography and Heart Disease, two weeks starting October 22.
UROLOGY—Intensive Course, two weeks, starting September 24.
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It was announced on August 16 that **Dr. L. L. Kallestad** planned to move from Brownton and establish a private practice at Wayzata. Dr. Kallestad went into partnership with Dr. A. M. Jensen in the Brownton Clinic in June, 1946.

* * *

Approximately seventy persons attended a meeting of the East Central Minnesota Medical Society on August 3 at which newspaper editors of the area were special guests. **Dr. Edmund Miller**, superintendent of the Anoka State Hospital and president of the society, presided. Among the speakers at the business session were Arch G. Pease, publisher of the *Anoka Union*, and Manley Brist, attorney for the Minnesota State Medical Association. The discussion centered primarily on the position of doctors and newspapermen in regard to the publishing of information about patients, principally in the case of accidents.

* * *

It was announced on August 9 that **Dr. Raymond W. Dowidat** had terminated his practice in Richfield and planned to leave shortly for duty with the U. S. Public Health Service in the Pacific. He expected to be stationed on the island of Saipan. Dr. Dowidat had practiced in Richfield since March, 1946. His practice has been taken over by **Dr. A. L. Arends**, formerly of Cokato.

* * *

Dr. Walter J. Doswell, after twenty-five years of practice in Kerkhoven, retired from active practice early in August.

A graduate of Marquette Medical College, Milwaukee, Wisconsin, in 1912, Dr. Doswell practiced in Wisconsin, North Dakota and Montana until the outbreak of World War I, in which he served in the medical branch of the Canadian army. After the war he took postgraduate training in ophthalmology and otolaryngology at Chicago and then practiced in Benson until 1926, when he moved to Kerkhoven. Always active in civic affairs, he served on the school board for ten years and was mayor of Kerkhoven for almost as many years.

* * *

At Lake Crystal a new clinic building has been constructed and will be staffed by two brothers, **Dr. Paul M. Smith**, and **Dr. Harry J. Smith**. Dr. Paul Smith has been associated in practice with **Dr. F. W. Franchere** at Lake Crystal since 1946. Dr. Harry Smith, a graduate of the University of Minnesota Medical School, recently completed his internship at the Milwaukee County Hospital, Wisconsin.

* * *

Venereal disease in Minneapolis has been brought under such effective control that the health department clinic there has been closed. The city is now maintaining a venereal disease clinic only at General Hospital. Since 1942 there has not been a single case of congenital syphilis although there have been more than 100,000 city births in that period.

* * *

Dr. Bernette G. Nelson, after five years of practice at Menahga, has moved to Richfield and opened a

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new practice there. Dr. Nelson is a graduate of the University of Minnesota Medical School.

* * *

Dr. Einer Wesley Johnson and Miss Nell Marie George were married at Colorado Springs, Colorado, on July 21. Following a wedding trip to Canada, they are now making their home at Rochester. Dr. Johnson, a graduate of the University of Minnesota Medical School, has completed a fellowship at the Mayo Foundation and has practiced with the Colorado Springs Medical Center.

* * *

Dr. Robert Pierce, formerly of Wadena, has moved to Renville and has become associated in practice with **Dr. D. C. Anderson** of Danube. Prior to the move, Dr. Pierce was associated in practice with his father, **Dr. Charles H. Pierce,** in Wadena.

* * *

It was announced on July 26 that **Dr. E. C. Burseth** of Forest Lake was planning to move to Mora as soon as housing could be arranged.

* * *

Between 2,000 and 3,000 persons gathered at Parkers Prairie on July 22 to pay tribute to **Dr. and Mrs. H. H. Leibold** and to congratulate them on their forty-two years of service to the community and surrounding area.

The celebration began with a parade through the city streets, followed by a commemorative program at the high school auditorium, the unveiling of a plaque at the local hospital, and a banquet in the evening. Among the speakers at the program were **Dr. H. L. Stemsrud,** Alexandria, and Mr. Val Bjornson, state treasurer.

* * *

HOSPITAL NEWS

Dr. J. J. Smyth, Lester Prairie, was elected president of the **Glencoe Municipal Hospital** staff in July. He succeeded Dr. Grant Griebe, Norwood, who had been called into military service. Dr. Smyth has practiced at Lester Prairie since August, 1948.

* * *

The **Littlefork Hosptial,** a twenty-two bed institution, was made the property of the village of Littlefork at a meeting of the Littlefork Hospital Association, Inc., in July. The hospital is continuing to function as a general hospital with Dr. R. A. MacDonald as administrator. The association, a nonprofit organization, is operating the hospital for the village.

* * *

A building fund drive for **Immanuel Hospital** in Mankato began officially on July 19 at a "kick-off" dinner attended by 600 volunteer workers. Principal speaker at the dinner was Dr. Charles A. Haney of Boston. The drive started with a backlog of $105,000 in advance gifts. Goal of the campaign was $350,000.

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TRIBUTE PAID BERTRAM ADAMS

At the testimonial dinner tendered Dr. Bertram Adams by the Chamber of Commerce of Hibbing at the Androy Hotel in May, 1951, some 100 guests included physicians from the different Range communities. Dr. T. A. Estrem of Hibbing acted as Master of Ceremonies, and George Fisher, president of the Chamber of Commerce, extended the official welcome and presented a gift to the guest of honor.

Dr. Owen W. Parker, formerly of Ely and now residing in Duluth, having been a classmate of Dr. Adams at the University of Minnesota, was invited to be the speaker but being unable to attend, he wrote the following tribute which appeared in the column of the *Hibbing Tribune,* "Along the Iron Range" in the issues of June 22 and 23:

The occasion of this testimonial is, of course, to give recognition of the honor conferred on Dr. Adams recently by the State Medical Association at Rochester when he was admitted to membership in the Fifty Club of the State Medical Association. This is a great honor, and few men are privileged to live so long, and give so great a length of service in medicine as this honor indicates. I know of no doctor more worthy than Dr. Adams to receive this honor, and I have probably known him longer than any one of you. My acquaintance dates back to about 1898, when we were both medical students at the University. I take it that neither one of us was blessed with an abundance of money to get through school, and that in the common vernacular we started from "scratch." Have you ever experienced the recalling of pictures that hang on "memories walls," some ordinary and, some extraordinary things that you never forget. Well, one of these pictures that I recall is seeing Dr. Adams swinging down the street in stride throwing papers with excellent aim onto the porches of the customers of his paper route; and I envied him in the job he had and the money I was sure he was making. I had tried to get a route myself, but "no dice."

There are many other things I have envied in Dr. Adams. One is his name—one of the most distinguished family names in America. No family has carried on through the generations in America with such distinction continuously. Is that the reason that Bert Adams is so good—his name? But Shakespeare said "What's in a name? A rose by any other name would smell as sweet." Then I have envied him the luck he had in getting started in Hibbing in the early days. Bert was in Biwabik with the late Dr. Charles Bray, and I was at the Soudan hospital with the late Dr. William W. Richardson. For some reason Bert decided to quit the Range, to go to Minneapolis, open an office and enter private practice in the great mill city; and who could blame him in this ambition? I, myself, intended to stay on the Range only a year or two, and then locate in Minneapolis, if possible.

Bert has told me this story himself. He opened an office in Minneapolis and waited two or three weeks. Not a patient crossed his office door, but the wolf was entering. About that time he received a call to come to Hibbing as surgeon for some mining company. What a piece of luck. Who could not be successful once having gotten on the ground floor of the wonderful Hibbing district, the "Iron Ore Capital"—one of the most wonderful, interesting, and stimulating places in the world throughout its marvelous growth and development and its people. How fortunate to have lived with such people through the years. The mere contact with them in their varied positions and places would stimulate one to his best

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endeavors. But while he was lucky to have been brought to Hibbing, Hibbing was also lucky to have Adams. He would have been successful anywhere either in the smallest hamlet or the great city. I am sure had he remained in Minneapolis, thousands of patients would eventually have crossed his office doors for he has the integrity, the intellectual honesty, the thrift, the ability and strength and toughness of physique and character to stand the work and strain of private practice to have made him in any place the good doctor.

Under our free system of medicine in America, such men as Dr. Adams are developed. We do not want to change this system. Although I am a doctor myself, I, like most people, want to choose my own physician no matter who he may be. He must be and is my family doctor, and no matter to how many doctor specialists he may send me for special examination he is still my doctor to whom I may feel free to go for either trivial or great questions or advice on medical and other things. Such a family counselor I am sure Dr. Adams has been to thousands of patients despite whatever special attainments he has acquired in surgery or other specialties. I shall never forget the great confidence my grandfather had in his old family country doctor. If the doctor came it helped, whether he gave medicine or not. Such a patient-physician relationship is truly inspiring. It is a part of freedom and must not be brushed aside in our modern trends.

I have always felt that the Iron Range communities of Northern Minnesota were particularly fortunate in having such a fine type of pioneer doctors. Only to mention some of their names corroborates this conviction. Dr. Harwood and Dr. William Richardson of Soudan, Dr. Chas. G. Shipman of Ely, Dr. Chas. Bray of Biwabik, Dr. Chas. W. Moore of Eveleth, Dr. Chas. Lemont of Virginia, Dr. Albert Shaw of Buhl, Dr. Dana Rood, Dr. Blacklock, and Dr. Bullen, and Dr. Bertram Adams of Hibbing. I have never seen a finer group of doctors or men. Fifty years is a long span. If we go back fifty years from 1901 when Dr. Adams started practice, we are in the year 1851; seven years before Minnesota became a state; ten years before the beginning of the war between the states; .... paper that year.

When I entered Medical School in 1896, ether had been used as an anesthetic just fifty years. We at the Medical School celebrated the fiftieth anniversary of its administration in October, 1846, at the old Massachusetts General hospital. Dr. Burnside Foster of Saint Paul, Dr. Adams will remember, made a brilliant and eloquent address describing the event in the old ether room which is still preserved. It made a great impression on me. Fifty years back seemed in the dark ages at that youthful period of life, but now how quickly these fifty years have passed. Dr. Adams, in his fifty years, has seen and taken part in a most marvelous advance in medicine. No period in the history of the world has been equal to it in medical, scientific and humane achievement. We old doctors could well wish to be young again and start another fifty years of medicine beginning it as medicine is today with its superior powers to cure and do good, compared to the day that Dr. Adams started in 1901.

We might well wish with Dr. Oliver Wendell Holmes, author poet, medical doctor, teacher of anatomy at Harvard University, father of the great Judge Oliver Wendell Holmes, in his poem:

"Oh, for an hour of boyhood joy,
  Give me back my twentieth spring
I'd rather laugh a bright-haired boy
  Than reign a gray-beard king.
Off with the wrinkled spoils of time,
  Away with learning's crown,
Tear out life's wisdom-written page
  And dash its trophies down."

And then appeared the angel and promised to restore him back to his youth and twentieth spring, in the twinkle of an eye, but he must give up all things dear to him through life, and most of all his wife and children. No, he could not do this—he must take them with him in the backward flight to "Boyhood Joy." The angel took a sapphire pen and wrote in rainbow dew, "Ah, this will never do. The man would be a boy again, and be a husband, too." Again the angel wrote with sapphire pen, "Ah, this will never do, the man would be a boy again and a father, too." The old man awoke from his dream, happy that he still had his adorable wife and wonderful boys and girls—happy that he had not given them up to return to his youth. Much good philosophy is expressed in beautiful poetic language, in the poem. We cannot and will not retrace our steps and go back to youth if we have to sacrifice the most valuable and cherished possessions of our life, wife, children, friends and associates.

I have no doubt that when Dr. Adams graduated in 1901 fifty years was so far beyond the horizon of his thought that it was not even contemplated. No doubt he now wonders where those golden years have gone. The title of a famous book tells it, "Gone With the Wind," and I imagine he is thinking in words like these "The sands of time move slowly but surely," and here I am at the 20th century mark before I knew it. I would like to celebrate again in fifty years, but the shadows lengthen toward the east, the purple hills are just beyond, and I am happy and proud to have reached this day, and humble and thankful, too. If I mistake not my spirit, I still wish to be of service and help to my fellow man, and I wish to be ever forward looking until the summons comes to "join the innumerable caravan that leads to that mysterious realm."

And so again I envy Dr. Adams in his long life of useful and successful practice of medicine in his full social, civic, fraternal and religious life. He has been highly honored many times before, having held many offices of trust in the medical profession, amongst them, president of the State Medical Association. General MacArthur, in closing his address to Congress said, "Old soldiers never die, they just fade away." So we here join the sentiment and change the words to "Old doctors like Dr. Adams never die, they just fade away," and with blessings on him always.

BLUE CROSS-BLUE SHIELD NEWS

Effective August 1, 1951, Blue Shield surgical and obstetrical benefits for both employes and dependents will be added to the present Blue Cross hospitalization benefits for employes and dependents of the U. S. Steel and its subsidiaries.

The adding of Blue Shield surgical and obstetrical benefits to the Blue Cross hospital benefits was agreed upon between the United States Steel Corporation and its subsidiary companies, and the United Steelworkers of America, C.I.O. The request was made to make this coverage effective August 1, 1951. The Board of Directors of Minnesota Medical Service were required to act speedily after conferring with members of the medical profession; therefore, it has not been possible to send to every participating doctor of medicine in Minnesota the details or the schedule of payments to doctors regarding this coverage. The schedule of payments to doctors is now being printed together with other information which will be sent out as early as possible.

Every employe of the United States Steel and its subsidiaries has been given an identification card as of August 1, 1951. On this card the word "Special" is imprinted to identify the employes of this group. Until the printed schedule of payments and other information regarding the coverage of this group are ready for distribution, Doctors of Medicine are requested to submit their claim to the Minnesota Medical Service Inc., and the amount of the schedule fee will be furnished him. The participant subscriber is required to pay the charges, if any, above the amount listed in the surgical fee schedule.

It is estimated that one-half million individuals, including dependents of employes of United States Steel and their subsidiaries will be covered throughout the United States. Payment will be provided in varying amounts according to the type of operation, up to a maximum of $200.00 for surgery performed in the hospital, at home or in the doctor's office, in cases of non-occupational sickness or injury. This plan covered 33,465 U. S. Steel employes and dependents in Minnesota as of August 1, 1951.

The semi-annual report of Minnesota Medical Service Inc., shows that Minnesota Blue Shield enrollment has increased to 464,169 as of June 30, 1951, compared to the total enrollment for the preceding year of 360,029. Seventy-seven Blue Shield Plans now serve more than 20,000,000 subscribers in the United States, Hawaii and Puerto Rico. For the past few years, enrollment in these Plans has increased at the rate of 1,000,000 members every three months. It is estimated that 28,000 new subscribers join Blue Shield every working day of the year.

Minnesota Blue Shield payments to doctors for the first six months of 1951 totalled $1,494,299 compared to $954,685 for the same period of 1950. Last year, nationally, the Blue Shield Plans paid doctors approximately $139,000,000 for care of Blue Shield subscribers.

Blue Cross enrollment as of June 30, 1951, totalled 1,034,002. Eighty-three Blue Cross plans now serve more than 41 million subscribers in the United States, Canada and Puerto Rico. Combined, the two plans, Blue Cross and Blue Shield, provide a comprehensive program to meet costs of unexpected illness or accident.

Hospitalization expense during June totalled $910,495. To date this year, hospitalization expense totals $5,729,228. The net administrative expense for the first six months of 1951 was 8.6 per cent of cash earned income.

On Friday, August 10, 1951, the cornerstone of the new Blue Cross-Blue Shield building located at University and Curfew Street, Saint Paul, just one block east of the city limits, was laid. The cornerstone laying ceremony was preceded by a noon luncheon at the Town and Country Club, Saint Paul, with David E. Bronson, Minneapolis attorney and president of the Blue Cross Board of Trustees, presiding. Minnesota Senator Harry L. Wahlstrand, Blue Cross-Blue Shield director of public education, spoke during the luncheon and Victor M. Anderson, superintendent of Abbott Hospital, Minneapolis, and chairman of the Blue Cross-Blue Shield Building Committee, gave a report on his committee.

Additional speakers during the luncheon meeting were Rev. L. B. Benson, administrator of Bethesda Hospital, Saint Paul, and vice president of the Blue Cross Board of Trustees; Dr. O. I. Sohlberg, president of the Blue Shield Board of Directors; Dr. Peter D. Ward, administrator of Miller Hospital, Saint Paul, and secretary and past president of the Blue Cross Board of Trustees; Dr. R. R. Cranmer, vice president of the Blue Shield Board of Directors; and Arthur M. Calvin, executive director of Blue Cross and Blue Shield.

Officiating at the cornerstone laying were David E. Bronson, president of the Blue Cross Board of Trustees and Victor M. Anderson, Blue Cross Board member and chairman of the Building Committee, along with other members of the Blue Cross and Blue Shield Boards, the executive director, building contractors and guests.

MOORE BUSINESS

AT THE CORNERSTONE LAYING CEREMONY

Pictured left to right, *front row* are: Victor Anderson, superintendent of Abbott Hospital, Minneapolis, handing trowel to Dave Bronson, Minneapolis attorney. Kneeling are Dr. Olaf I. Sohlberg, Saint Paul, president of the Blue Shield Board of Directors; Dr. R. R. Cranmer, Minneapolis, vice president of the Blue Shield Board of Directors, and Arthur M. Calvin, executive director of the Minnesota Blue Cross-Blue Shield Plans. Standing *back row,* Paul Schorr, Commonwealth Electric Company; William Riedel, secretary-treasurer of Sanitary Farm Dairies, Inc., Saint Paul, member Blue Cross Board of Trustees; Rev. L. B. Benson, vice-president of the Blue Cross Board of Trustees, superintendent, Bethesda Hospital, Saint Paul; Mr. Ray K. Swanson, member Blue Cross Board of Trustees, Superintendent Swedish Hospital, Minneapolis; Mr. C. W. Hildreth, Austin, member, Blue Cross Board of Trustees; Mr. Harry E. Kern, assistant treasurer and vice president of the First National Bank, Saint Paul and member Blue Cross Board of Trustees; Mr. Thomas F. Wallace, chairman of the Board of Farmers and Mechanics Bank, Minneapolis, member Blue Cross Board of Trustees, Dr. Peter D. Ward, Secretary of the Blue Cross Board of Trustees, and Superintendent of Miller Hospital, Saint Paul; Mr. Abbott L. Fletcher, Counsel and Minneapolis attorney, Dr. L. L. Sogge, Windom, member Blue Shield Board of Directors, Dr. Edwin J. Simons, Minneapolis, medical director of Blue Shield and Dr. C. A. McKinlay, Minneapolis, secretary Blue Shield Board of Directors.

(Inset) Officiating at the cornerstone laying of the new Blue Cross-Blue Shield building are: *(left)* Dave Bronson, president of the Blue Cross Board of Trustees, *(right)* Victor Anderson, chairman of the building committee.

BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical Libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

BOOKS RECEIVED FOR REVIEW

LET'S HAVE HEALTHY CHILDREN. Adelle Davis, A.B., M.S., Consulting Nutritionist. 314 pages. Illus. Price $3.00, cloth. New York: Harcourt, Brace & Co., 1951.

LET'S COOK IT RIGHT—Good Health Comes from Good Cooking. Adelle Davis, B.A., M.S. 626 pages. Illus. Price $3.00, cloth. New York: Harcourt, Brace & Co., 1947.

THE ODYSSEY OF MODERN DRUG RESEARCH. Robert Burlingham. 124 pages. Illus. Cloth Bound. Kalamazoo, Michigan: The Upjohn Co., 1951.

TOBACCO AND THE CARDIOVASCULAR SYSTEM. Grace M. Roth, Ph.D. Associate Professor of Experimental Medicine, Mayo Foundation for Medical Education and Research, Graduate School, University of Minnesota, and Consultant in Section on Physiology, Mayo Clinic, Rochester, Minnesota. 66 pages. Illus. Price $2.25, flexible binding. Springfield, Illinois: Charles C. Thomas, 1951.

THE MANAGEMENT OF FRACTURES, DISLOCATIONS AND SPRAINS. Fifth Edition. John Albert Key, B.S., M.D. Clinical Professor of Orthopedic Surgery, Washington University School of Medicine; Associate Surgeon Barnes, Children's and Jewish Hospitals; and H. Earle Conwell, M.D., F.A.C.S., Associate Professor of Orthopedic Surgery, University of Alabama School of Medicine, Chief of Orthopaedic Service, South Highland Infirmary, Consulting Orthopaedic Surgeon to Carraway Methodist Hospital and Baptist Hospitals, Attending Orthopaedic Surgeon, Children's Hospital, Jefferson-Hillman Hospital, East End Memorial Hospital, and St. Vincent's Hospital, Birmingham, Alabama. 1232 pages. Illus. Price $16.00, cloth. St. Louis: C. V. Mosby Co., 1951.

SURGERY OF THE STOMACH AND DUODENUM. Claude E. Welch, M.D. Associate Visiting Surgeon, Massachusetts General Hospital; Clinical Associate in Surgery, Harvard Medical School. 349 pages. Illus. Price $8.50, cloth. Chicago: Year Book Publishers, 1951.

TECHNICAL METHODS FOR THE TECHNICIAN. Fourth Edition. Anson Lee Brown, B.A., M.D., President of Anson L. Brown, Inc. 784 pages. Illus. Price $10.00, flexible binding. Columbus, Ohio: Anson L. Brown, Inc., 1951.

DIAGNOSTIC PITFALLS IN CARDIOLOGY

(Continued from Page 859)

which it may be necessary to exclude before deciding that a given electrocardiogram means heart disease are almost endless. I am of the opinion that one should take only as many electrocardiograms as may be necessary to confirm or deny a pathologic condition. I am not speaking entirely seriously when I make the following recommendations, but one might say that to examine a patient properly with the electrocardiograph, one should make the following records: three standard, three unipolar limb and six unipolar precordial leads, taken in the following position: with the patient sitting, standing, lying on his back and on right and left sides, and before and after eating, before and after exercise, while he is hypnotized and after firing a gun off behind his head, and without considering permutations, this means 132 electrocardiograms on each subject. It is fortunate, indeed, that tracings can now be recorded immediately on paper without putting such a mass of records through photographic development.

Seriously, however, I would not ask you all to be electrocardiographers. In fact, I would pray that you would not be, but I do advise a spirit of skepticism because I have seen individuals not acceptable for life insurance when their electrocardiograms were recorded in the recumbent position who became eligible when they stood up, and we must always remember the neurogenic factors in this diagnostic method.

I have given you somewhat random thoughts on some of the pitfalls into which I have fallen in the past thirty years with the hope that it may help you in avoiding them. I hope that none of us will diagnose heart disease when it is not present, because if the patient did not have heart disease before we saw him, he certainly will after we get through.

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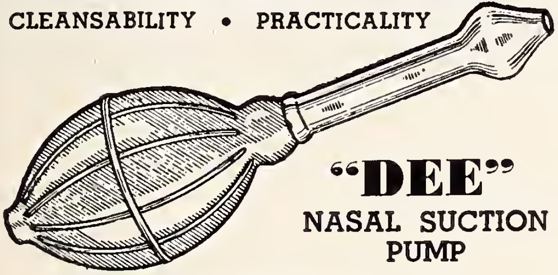

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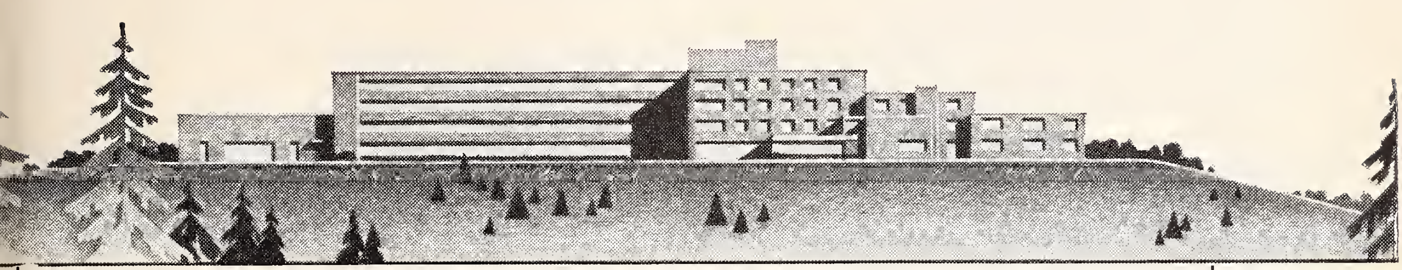

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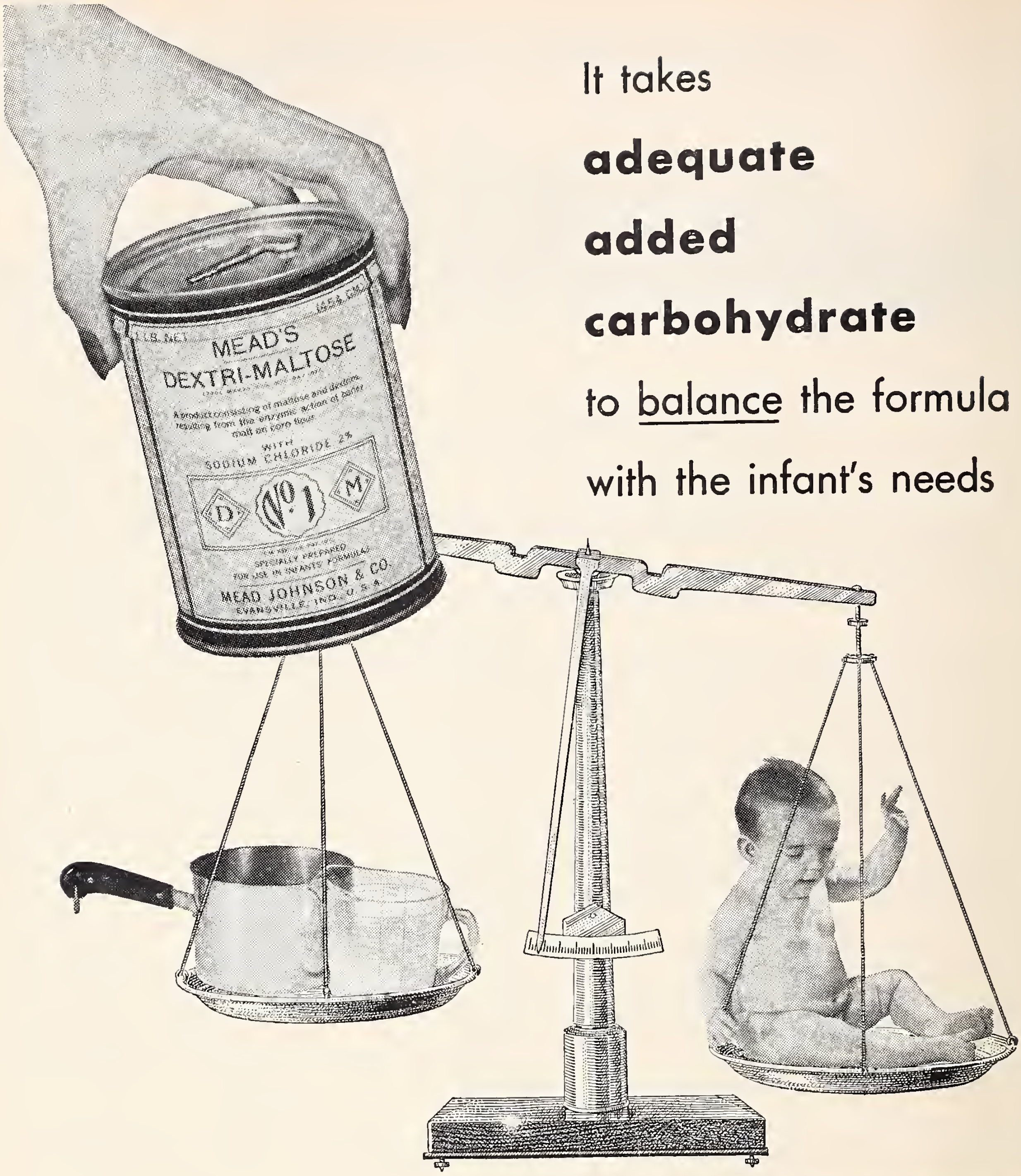
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Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

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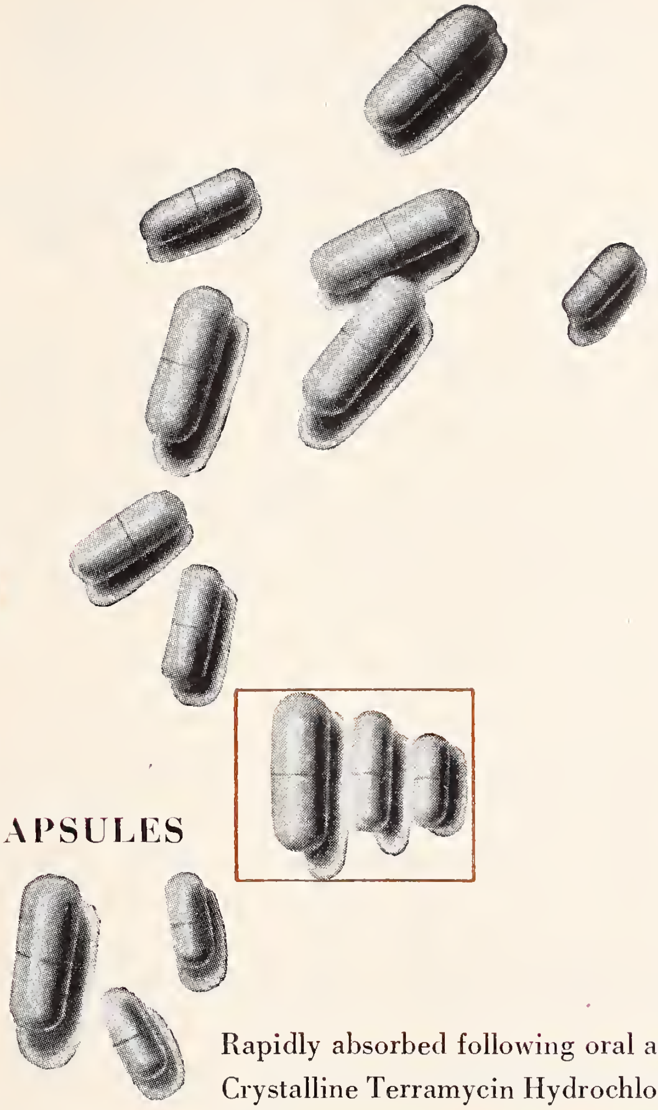

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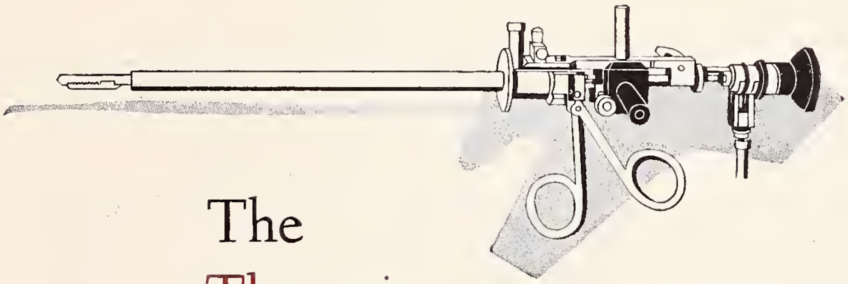

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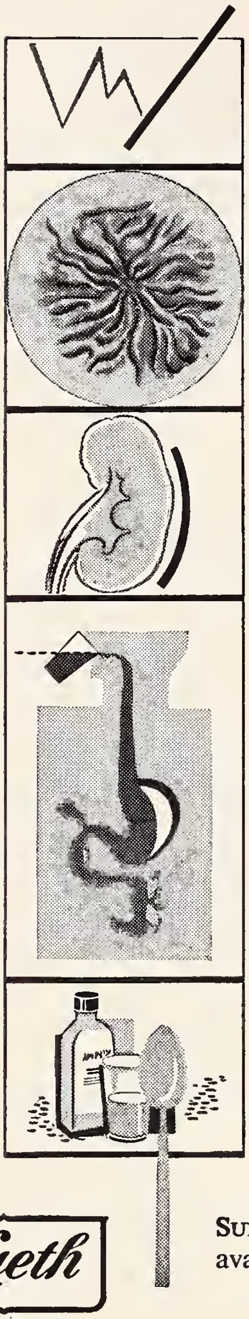

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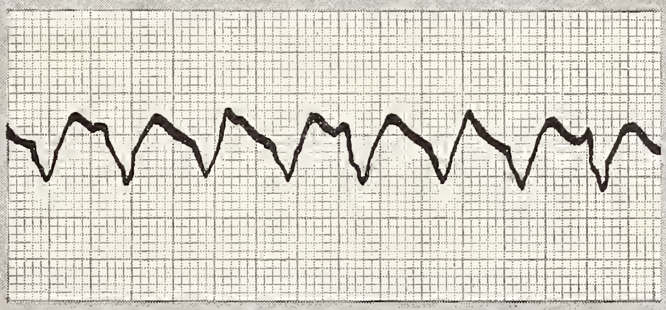

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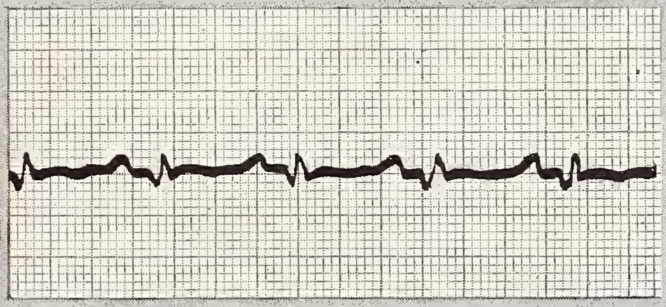

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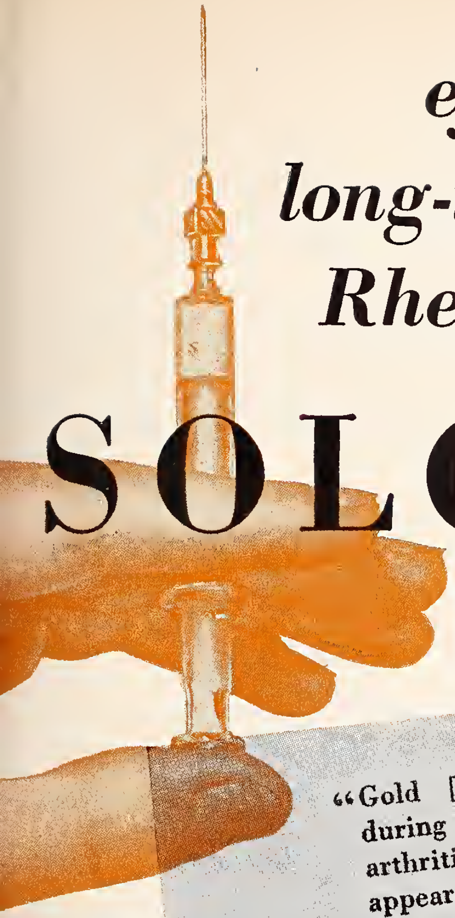

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1 Adams, C. H., and Cecil, R. L.: Ann. Int. Med. *33*:163, 1950.
2 Bayles, T. B.: Medical Forum, Mod. Med. (no. 24) *18*:86, 1950.
3 Gilbert, J. T., Jr., and Moore, F. H.: J. Kentucky State M. A. *48*:308, 1950.

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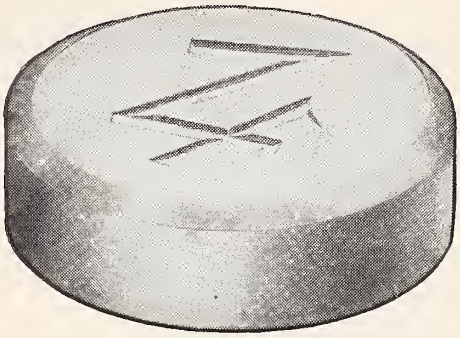

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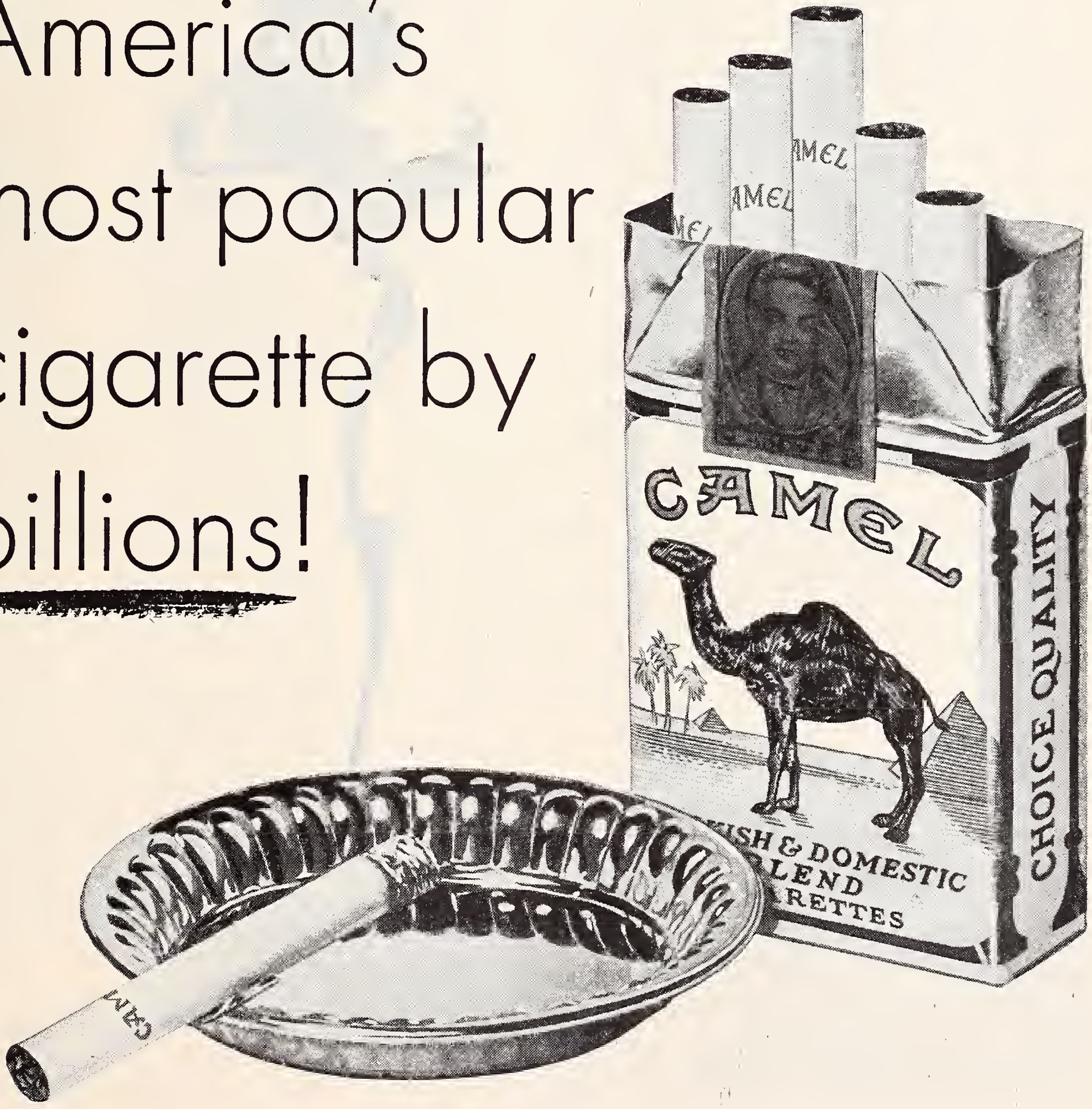
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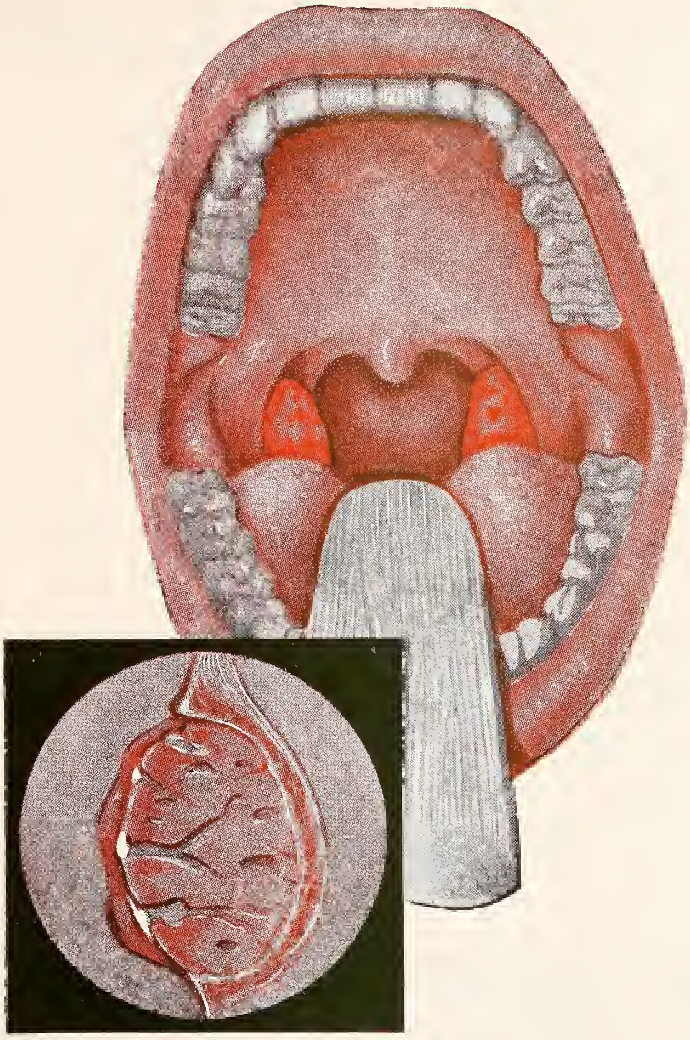

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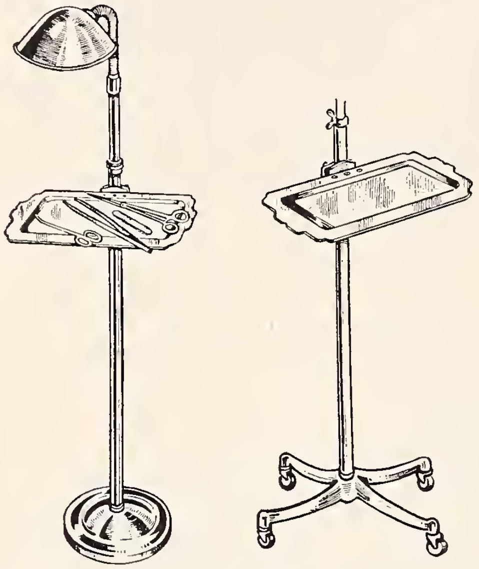

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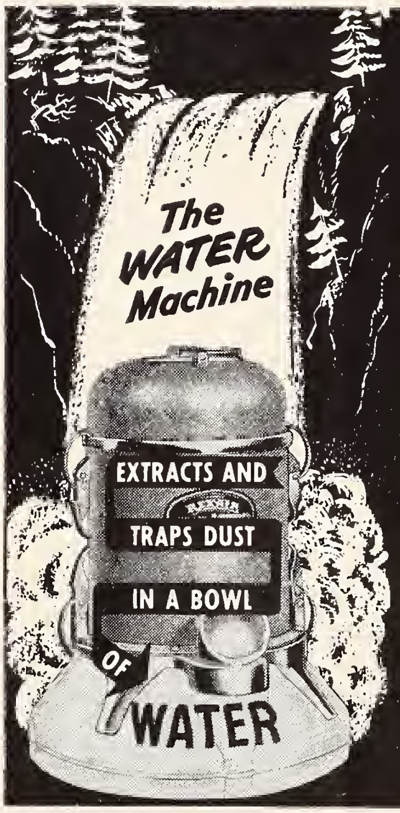

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*Baumgartner, L.: Wider Horizons for Children; The Mid-century White House Conference and Children's Nutrition, J. Am. Dietet, A. 27:281 (Apr.) 1951.

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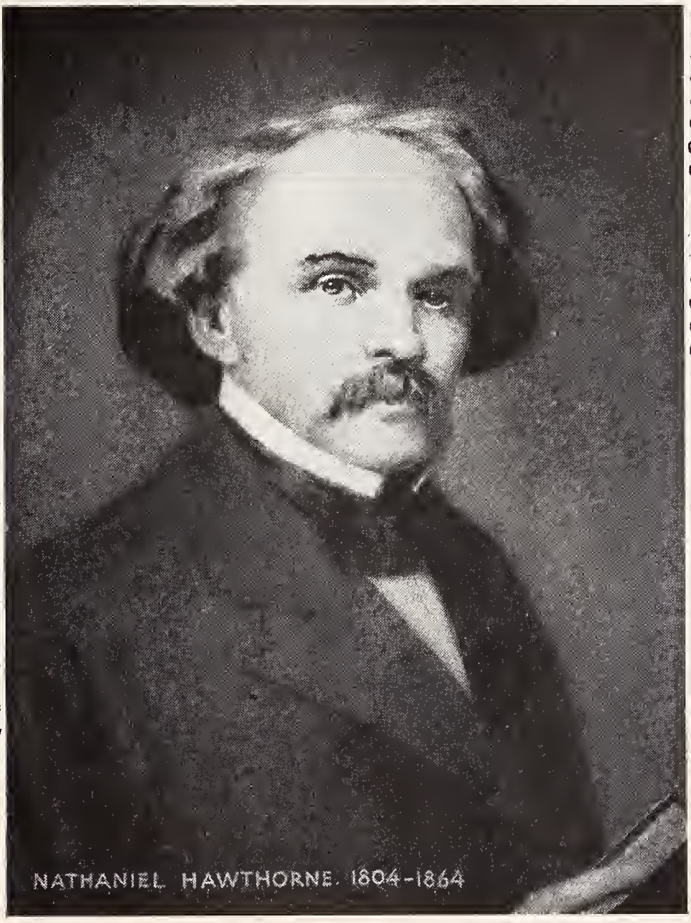

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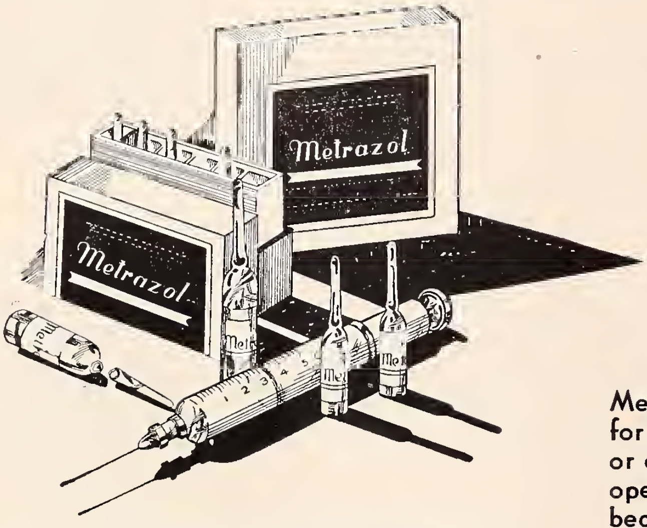

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1. Clark, Le M.: The Vaginal Diaphragm. St. Louis, C. V. Mosby Company, 1938; p. 43.
2. Dickinson, R. L.: Techniques of Conception Control. Baltimore, Williams & Wilkins Company, 1950; p. 17.

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Volume 34 **October, 1951** **Number 10**

HYPERTROPHIC PYLORIC STENOSIS

HAROLD F. FLANAGAN, M.D.
Saint Paul, Minnesota

MOST of the literature on the surgical treatment of congenital hypertrophic pyloric stenosis gives one the impression that the treatment of this disease is simple and routine. This, however, is not true, for it is a major surgical operation in a partially starved, and metabolically disturbed infant. The baby, at the age surgery is usually done in this condition, is a most labile creature. He is very susceptible to infection, has a most unstable fluid balance, and requires a maximum of nursing care. Therefore, it seemed only natural to choose this subject in order to evaluate the care a pediatric hospital, such as Children's Hospital, Saint Paul, offers to its patients.

The proper care of these patients involves not only the surgical staff but the pediatric and resident staff, the laboratory and roentgenological service, and yet, all of these would be helpless without the nursing staff.

The present study covers the period from 1945 to 1950, inclusive, and includes all of the cases surgically treated for congenital hypertrophic pyloric stenosis. There were seventy-three infants surgically treated. Seventy-two of these had pyloromyotomies. These cases were medically managed by nineteen pediatricians or general practitioners, and the surgery was done by eleven different surgeons. Nine of these surgeons limit their work to surgery; two do general practice but are qualified by the hospital staff to do this type of surgery.

The Children's Hospital is a private hospital, and most of the patients are private patients. The hospital has a "free bed" service for part, or wholly, charity cases. The patients admitted to this service are cared for by the medical and surgical staff on a rotating basis.

The resident staff consists of one affiliating intern, one first-year and one second-year fellow in pediatrics at the University of Minnesota. The laboratory staff is under the direction of Dr. Kano Ikeda, and the roentgenologic service is directed by Dr. Harold Peterson.

The nursing staff is most complete, being well trained and very co-operative.

Of the seventy-three cases treated surgically, seventy-two had pyloromyotomies. At operation, one infant was found to have no pyloric tumor and a patent pyloric canal. After a surgical exploratory, the abdomen was closed, and the infant was treated medically for pylorospasm. Another infant required a second pyloromytomy before the obstruction was relieved. Eight of the babies surgically treated had surgical complications, and nine of them had medical complications, one of them dying from pneumonia. With seventeen of seventy-two patients showing either medical or surgical complications, this treatment is not to be considered lightly. Therefore, while it may be repetitious, it is appropriate to review in some detail the pathologic condition, the signs and symptoms, the preoperative and postoperative care, as well as the diagnosis and complications of congenital hypertrophic pyloric stenosis.

A typical case of congenital pyloric stenosis is described by Szilagyi and McGraw.[14] The infant is usually a lusty specimen, probably the first born in the family, born spontaneously after a normal pre-natal development. He nurses well and shows

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Inaugural thesis presented before the Minnesota Academy of Medicine, March 14, 1951.

good progress until the second or third week of life, when, rather suddenly, he begins to vomit some of his feedings. While maintaining his appetite, and without developing a febrile disease, the vomiting becomes gradually more severe, and the infant begins to lose weight, becomes wizened, and, unless energetic medical attention intervenes, he dies of starvation or pneumonia before the age of three months.

Congenital hypertrophic pyloric stenosis is the most common surgical condition in the first three months of life. While the surgical treatment of this disease is good, we cannot let up on the vigilance of an alert medical and surgical team if we are going to advance in the therapeutic management of this disease. Every practicing pediatrician and almost every general practitioner and general surgeon will be called on sometime to treat an infant with hypertrophic pyloric stenosis. It is then that the excellent mortality figures of Ladd,[6] Donovan,[3] Wyatt,[15] and others like them, mean little unless we are prepared to follow their advice completely and meticulously. Ladd states that the mortality rate in a Children's Hospital should not be above 1 or 2 per cent, but to attain such results requires attention to the details of preoperative and postoperative care as well as the operative technique.

Historical

According to Kellet (quoted by Szilagyi and McGraw), the disease was first reported by a German pediatrician, Hildanus, about 1646. Blair in 1717, Weber in 1758, and Armstrong in 1771, reported cases strikingly similar to the disease as now recognized. In 1778, in the first medical periodical published in the United States, Hezekiah Beardsley[12] reported what, for years, was thought to be the first case on record of this disease. It was not, however, until 100 years later, when Hirschspring at the Widsbaden meeting of the "Geselschaff fur Kinderheilkinde" in 1887, reported two cases of infantile pyloric stenosis, that the disease was fully recognized. Hirschspring was primarily interested in the pathological anatomy of this disease and gave an accurate account of the gross anatomy. He supposed that this hypertrophied pylorus covered a typical type of infantile vomiting.

Within a very short time, the disease became widely known. Finkelstein, Huebner, Pfaundler in Germany; Hutchinson and Thomson in England; Holt, Downe and Scudder in the United States were especially eminent among those who early interested themselves in this disease.

Predisposing Causes

A great many factors have been reported to bear a relationship to the incidence of congenital hypertrophic pyloric stenosis. The disease occurs predominately in males. In Ladd's series, 85 per cent of the cases treated were males. This is about the relationship shown by most observers. In our series, 87 per cent were male children.

The disease is reported to occur most frequently in the first-born infant. The usual percentage found is between 50 and 60 per cent. In the cases reviewed in this group, 39 per cent occurred in the first-born child.

All of the infants in this group were of the white race. Donovan[4] reports 2 per cent of his cases occurred in the negro race, and Romanos[13] reports that 30 per cent of his cases at New Orleans Charity Hospital occurred in the colored race.

Familial occurrence is noted by many observers, among them Sauer, Finkelstein, Ladd, and Bilderback. The twinning incidence of pyloric stenosis is strong in support of a hereditary factor. Laubscher and Smith[8] find pyloric stenosis present in both twins in eleven of thirteen monozygotic twins, but in only two of twenty-four sets of biovular twins. In the seventy-two cases reviewed, there was no history of any other sibling having had surgical treatment for this disease. There were four cases where other children in the family had been treated for persistent vomiting in infancy, and, in one instance, the father of one of the infants had been treated for pylorospasm as an infant.

There was no definite seasonal incidence noted in this group of cases.

Pathology

The primary pathologic lesion is limited to the pylorus. Other pathologic changes, such as wasting of the body, and metabolic disturbances, with alkalosis and death, are all secondary to, and result from, the obstruction caused by the stenosis of the pylorus.

Grossly, there is a smooth shining mass, usually cartilagenous in consistency, at the pyloric antral region. This mass, loosely spoken of as a tumor, is spindle shaped, its length varying from 2 to 3.5 cm. and its width from 1.5 to 2 cm., with a wall thickness of .5 to .8 cm. The muscular coat of the entire stomach is thickened to some degree, and the lumen dilated. The mass itself is formed by a hypertrophy and some hyperplasia of the circular muscle fibers. There may be some involvement of the longitudinal muscle as well. This increased muscular volume within the confinement of an adherent and unstretchable peritoneal covering, transforms the pliable pyloric canal into a hard and solid tube. The swelling of the muscle causes a protrusion of the mass into the duodenum, much as the cervix protrudes into the vagina.

The hypertrophy of the muscle mass causes a compression of the vascular branches, and gives rise to the pale, bloodless appearance of the muscle fibers and component tissue. The consistency of the muscle turns crisp and gritty as the disease progresses and, probably on account of the stretching and loosening of the peritoneal covering by the growth of the muscle fibers, the mass again becomes softened and more vascular. It is this factor of age that apparently accounts for the two types of tumors found by the surgeons.

The tumor mass reaches the maximum hardness and size from the fourth to the ninth week, postnatally. The secondary softening of the muscle mass may account for the tendency of spontaneous recovery seen in some cases.

Microscopically, there is a marked hypertrophy of the circular smooth muscle layer, together with an actual increase in the number of smooth muscle fibers. Sections of the mucosa reveal edema and leukocytic infiltrations.

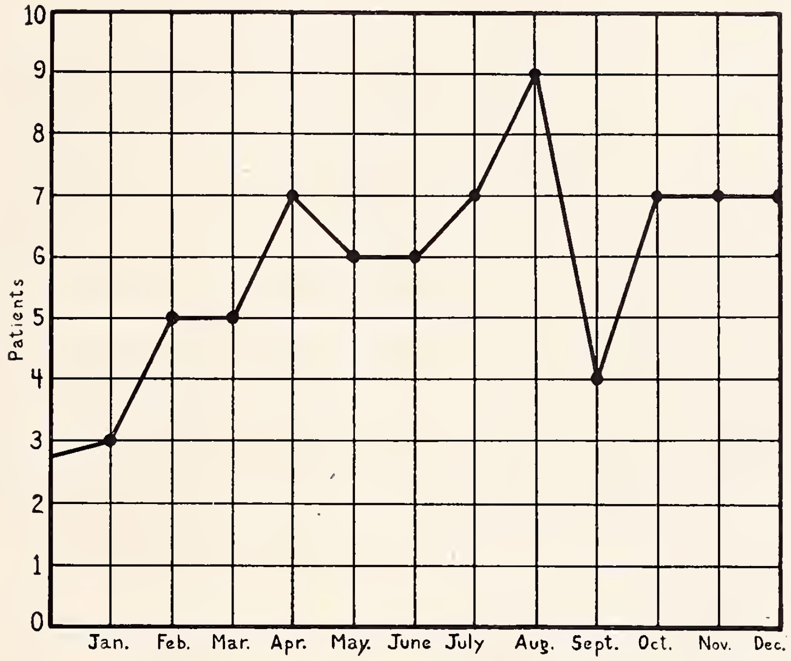

Fig. 1. Seasonal incidence of pyloric stenosis cases studied.

Causes—Theoretical

Many theories as to the cause of this condition are advanced but no one has found a single theory that is acceptable.

That the tumor is present at birth is generally agreed, It has been found in premature and stillbirths. Whether the tumor is a congenital anamoly is questionable. The infreqency of associated congenital anamolies is noted by most of the observers. Lehman offers the theory that the pyloric sphincter, differing from the rest of the musculature of the pyloric canal, is in a state of tone when not working; its working state occurs when the sphincter opens. Thus, hypertrophic pyloric stenosis is a congenital hereditary inability of the pyloric sphincter to open. This is similar to an adhesion of the cardiac sphincter. The result of this condition is a marked hypertrophy of the pyloric musculature.

Ladd believes the disease is a combination of pylorospasm and a marked hypertrophy of the pyloric muscle, together with edema of the mucous membrane from mechanical irritation of the milk curds. The onset of symptoms, usually between the second and fifth week, the severity of the vomiting, and the ultimate development of complete pyloric obstruction are directly related to the degree of hypertrophy present in the individual case.

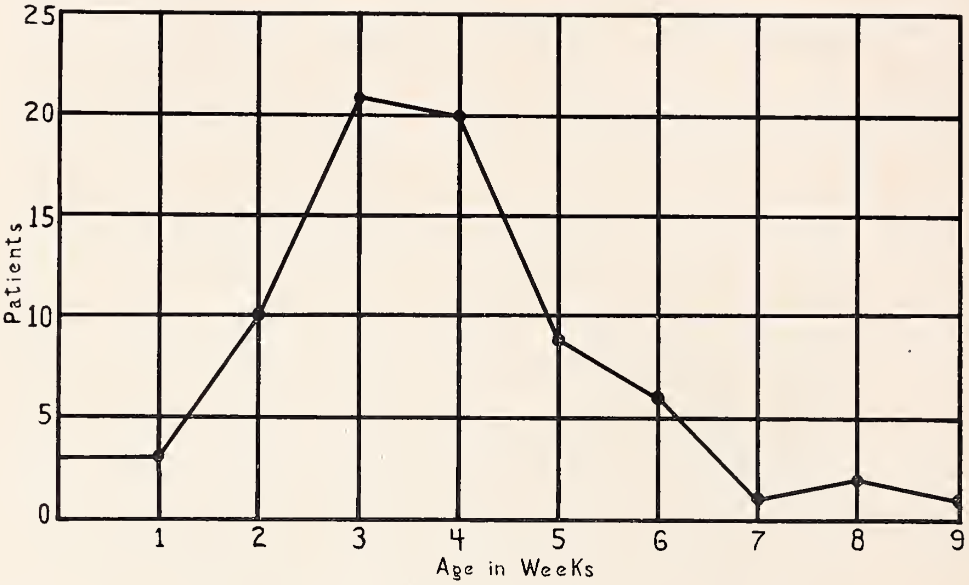

Fig. 2. Comparison of ages at onset of symptoms.

Donovan believes the tumor is congenital; that the pylorospasm follows the hypertrophy, and that the spasm is responsible for the onset of symptoms at two to five weeks of age. He bases his conclusions on the disappearance of the tumor about seven weeks after a Fredel-Ramstadt pyloromyotomy, and the persistence of a tumor mass for twenty-nine years after a posterior gastroenterostomy done for this condition. He believes the congenital origin of the tumor is supported by the predominance in males, the tendency to occur in the first born, as well as the finding of the tumor in premature infants, who failed to survive because of prematurity.

Signs and Symptoms

Vomiting is the presenting symptom in every case. The vomiting usually begins in the first two to three weeks of life. The earliest in the groups was one week and the latest nine weeks. At first, the vomiting is infrequent and not forceful. Usually, in a few days, the vomiting becomes more frequent and projectile in character. The child is continually hungry, and will feed eagerly right after vomiting. The vomitus never contains bile, but it is curdled. Blood in the vomitus is not infrequent. It was grossly present in nineteen of the seventy-two infants.

As the vomiting increases in freqency, there is loss of weight. At the time of surgery, most all of the infants are at, or under, birth weight.

Constipation is a frequent complaint mentioned by the parents. The child is vomiting and having infrequent stools. At first, the stools are small and hard; later they become scanty, mucoid and dark green in color. These are the "starvation type" of stools. Diarrhea seldom occurs in this disease. If it does occur, it is a very serious preoperative complication.

The presence of visible peristaltic waves is clinically characteristic of this disease. With the infant between the examiner and the window, or light, inspection of the abdomen will reveal waves of peristalsis, progressing from left to right in the epigastrium. These waves are large, and as the wave reaches the pyloric region, a characteristic frown may frequently be seen on the face of the infant. Peristaltic waves were noted clinically in all of the seventy-three cases.

Palpation of the abdomen for a tumor mass should be carefully done. The finding of a palpable tumor is almost pathognomonic of this condition. Ladd and Donovan believe a tumor can be felt in almost every case if carefully palpated for. Grimes, Bell and Olney[5] find the tumor palpable in about 70 per cent of their cases. In this group, the mass was definitely palpated in thirty-one infants and questionably palpated in sixteen; it was not felt in twenty-six. At surgery, there was a definite tumor mass found in seventy-two of seventy-three cases.

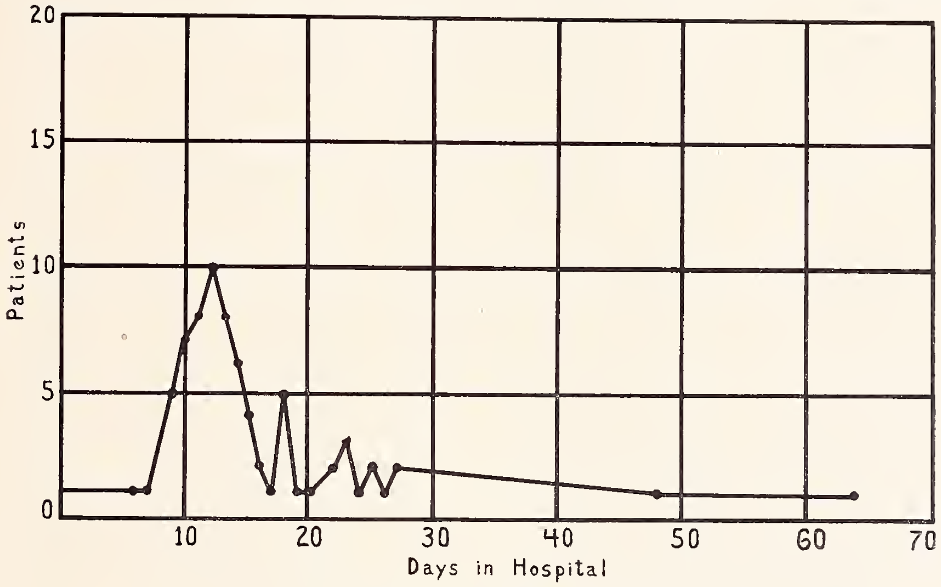

Fig. 3. Comparison of total number of days spent in hospital.

Dehydration is the most serious symptom of this disease. It is important to recognize this dehydration and absolutely necessary to correct it before operation if we are going to avoid losing unnecessary lives. If the infant is followed closely and the diagnosis made early, this symptom can, in a large measure, be prevented. It is most important to recognize the moderate from the severe type of dehydration.

The child suffering from moderate dehydration has, and is making a quite satisfactory adjustment to the loss of fluids. The vital functions, especially of the brain, kidney and liver, have not, as yet, been impaired. On the other hand, the severely dehydrated infant has exceeded his physiologic compensatory mechanism, and organic damage to the brain, kidney, liver and spleen may, or does occur. This damage is the result of lack of oxygen, due to a reduction of the blood flow and hemo-concentration.

The child with moderate dehydration is anxious and irritable; the skin is dry; the mucous membrane of the mouth is still moist. The skin of the axilla, groin, hands and feet is still moderately moist. The blood protein and urea nitrogen values are normal. The urine is scanty and has a high specific gravity. There may be some fever, particularly in the warm weather.

The infant with severe dehydration has a grey, or ashen color; the skin is dry, leathery, and occasionally mottled. The skin may be so dry it lies in folds about the buttocks. The eyeballs are soft and sunken. Instead of being irritable, the child is apathetic. The mucous membrane of the mouth is dry and the saliva thickened. Anuria is usually present. The hemoglobin and plasma proteins are elevated, indicating hemo-concentration. The urea nitrogen of the blood is elevated.

Dehydration in this disease is the result of vomiting, due to pyloric obstruction. As a result of vomiting, there is a loss of hydrochloric acid; this leads to a depreciation of the blood chlorides, and a compensatory increase of the bicarbonate of the blood. The wastage of ingested food results in a depletion of the protein and water. Thus, besides dehydration in this disease, there may be a protein deficiency and an alkalosis.

Alkalosis manifests itself in the form of irregular, shallow breathing, with frequent periods of apnea. Tetany may occur. Tetany in most of the cases manifests itself by muscular rigidity and occasionally by convulsions. The presence of alkalosis can be confirmed by an analysis of the carbon dioxide content of the blood serum for the carbon dioxide content of the blood serum is largely a measure of the blood bicarbonate.

Akin, Jr., and Forbes,[1] in a clinical and laboratory study, show a definite correlation exists between the duration of vomiting and an increase in the carbon dioxide content of the blood serum. The length of time vomiting continues is likewise correlated with the chloride loss in the blood serum. In the same series of cases, they also show the effects of vomiting and dehydration on kidney function. In thirty-six cases, twenty had elevated non-protein nitrogen values; ten of these were in the range of 35 to 50 mg. per cent; nine between 50 to 100 mg. per cent and one 112 mg. per cent.

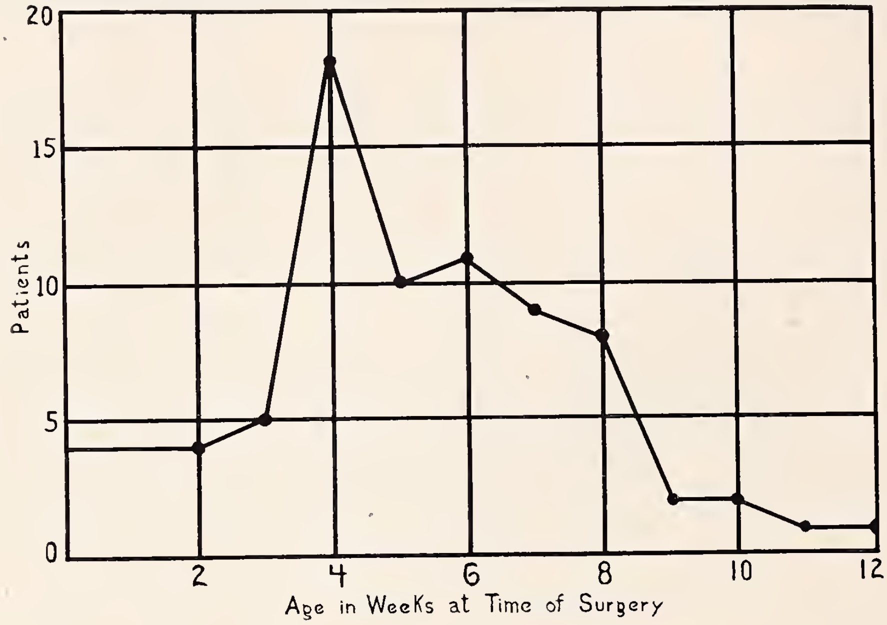

Fig. 4. Comparison of ages at time of surgery.

Roentgenologic Findings

In most cases, roentgenologic examination is not necessary in arriving at a diagnosis, but in the atypical or questionable cases, it is most valuable. There is no contraindication to a proper roentgenologic examination. In this group of cases, the roentgen examination was the diagnostic media in one infant, and, had it been used in another, it would, very likely, have prevented unnecessary surgery.

At roentgen examination, the stomach should be completely emptied, by aspiration, to remove air and gastric fluid. Then, a thin barium mixture of 1 to 2 ounces should be introduced into the stomach by tube. The infant should be examined fluoroscopically in the lateral and oblique, as well as the anterior and posterior, positions. The oblique view is particularly valuable in bringing the pyloric canal into the field.

For some time, the roentgenologic criteria have been the dilatation of the stomach and a delay in the emptying time. These are valuable, but not diagnostic findings.

Olnick and Weens,[11] using a technique where they gently press the contrast media into the pyloric region, find it possible to demonstrate the string-like, narrow and elongated canal in a number of cases. Stop roentgenograms in the oblique and prone position often demonstrate this finding clearly. The unfailing roentgen evidence of this disease is the demonstration of a long, narrow, string-like shadow, only 1 to 2 mm. in width—the so-called "string sign." The pyloric beak is another rather definite diagnostic x-ray finding. Occasionally, indentation of the duodenal cap can be demonstrated; this, too, is diagnostic. These may be called the specific signs. It is the impression of the reviewer that the roentgenologic examination was not used sufficiently in this group of cases.

Differential Diagnosis

In most cases, the disease is so clear cut that the differential diagnosis is not difficult. Pylorospasm must always be considered in arriving at a diagnosis in these infants. Whether we wish to consider pylorospasm a true disease entity or not, a good number of infants are seen by the pediatrician who, on the first examination, cannot be differentiated from those with congenital hypertrophic pyloric stenosis. Only observation and time, or the response to atropine or the barbiturates, can make the diagnosis definite. For, in pylorospasm, the vomiting is usually controlled by concentrated feedings, atropine, or phenobarbital, within four or five days. In one of the cases in this group, in spite of hospital observation, diet and sedatives for five days, a diagnosis of hypertrophic pyloric stenosis was made and operation advised. On opening the abdomen, there was no tumor found and the pylorus was patent. This was a case of pylorospasm. Nafe[10] reports similar experiences.

Vomiting that is due to infection can usually be differentiated by a careful physical examination. It seldom affords any diagnostic problem.

Intracranial injuries may cause vomiting that simulates that found in hypertrophic stenosis of the pylorus. A good history and thorough physical examination is almost always sufficient to warrant a differential diagnosis.

Esophageal atresia and stenosis, and occassionally esophagitis, may produce vomiting and loss of weight, two of the common symptoms of congenital hypertrophic pyloric stenosis. However, in atresia or stenosis of the esophagus, vomiting is usually present since birth, the vomitus is not curdled and vomiting usually occurs at, or almost right after, feeding. The inability to pass a catheter into the stomach is the easiest and surest differential in these conditions. In the infants with esophagitis, vomiting may not begin for from two to five weeks after birth, but the type of vomiting is much the same as that found in atresia or stenosis of the esophagus. Roentgenologic examination is most helpful in making this diagnosis.

Congenital obstruction of the first part of the duodenum may produce symptoms similar to those seen in hypertrophic pyloric stenosis. However, in duodenal obstruction, the vomiting is present since birth and the vomitus is bile stained. X-ray examination will usually make this condition apparent.

Extrinsic intestinal obstruction, such as malrotation of the colon, or congenital bands that cause pressure in the duodenum, may give rise to explosive vomiting, and visible gastric waves. The vomitus usually contains bile and the roentgenologic examination is diagnostic in these conditions.

Chalasia of the esophagus is a new syndrome first described by Edward Neuhauser.[2] It may produce vomiting, weight loss and simulate in some degree the picture of congenital hypertrophic pyloric stenosis. In one of the cases in this group, it was present along with hypertrophic pyloric stenosis. In chalasia of the esophagus, the infants vomit persistently, usually beginning about the second week of life. They do not have gastric waves and the vomiting is usually not projectile. Roentgenologic examination reveals a dilated cardia and frequent regurgitation of the barium into the esophagus. The infants with this condition respond to thickened feedings, and although Neubauer suggests feeding and retaining the infant in Fowler's position, it has been our experience they do best when they are fed and kept on their abdomens.

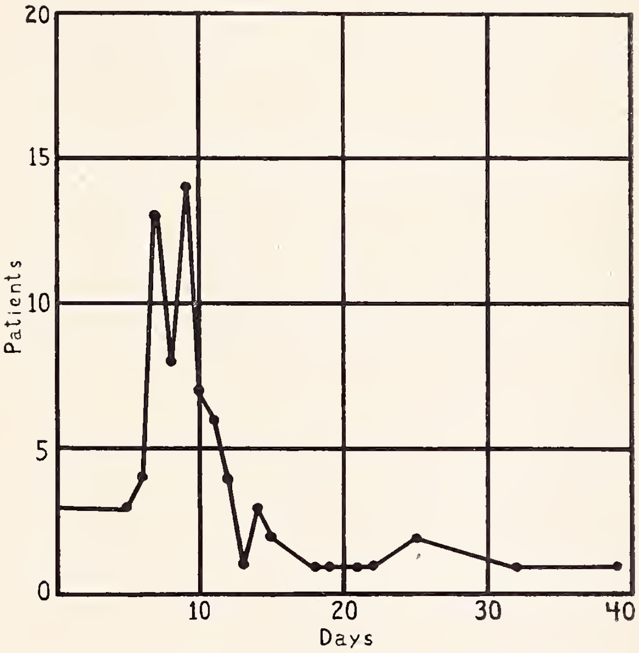

Fig. 5. Number of days spent in hospital postoperatively.

Treatment

Medical treatment of congenital hypertrophic pyloric stenosis should not be continued beyond the time necessary to differentiate the probable from the established cases. If this policy is established, the dangers of dehydration are eliminated and the prognosis improved.

When the diagnosis has been made, the infant should be hospitalized for preoperative therapy. If the infant has no infection, he should be admitted to a clean nursery, and isolation nursery technique adhered to. If he has any evidence of a complicating infection, he should be isolated and the infection vigorously treated with antibiotics. At the same time, his fluids should be maintained. It is well in all of these cases to have a chest x-ray at the time of admission to the hospital.

Preoperative treatment should be aimed at overcoming the fluid loss, a replacement of the liver glycogen reserve, and the establishment of a normal electrolytic balance. When, or if the kidney is functioning normally, the protein deficit should be replaced with plasma or whole blood. Vitamin C should be given in the intravenous fluids in amounts of 100 mgm. per day, and vitamin K should be given preoperatively for two days. The ideal preoperative treatment is two to three days. This condition is never a surgical emergency. More infants are lost from inadequate preoperative therapy than from surgical errors.

The amount of time required to prepare the patient for surgery is dependent on the state of dehydration. Ladd gives two intravenous infusions and two subcutaneous clysis daily. The intravenous solution he uses is 5 per cent dextrose in distilled water, given in amounts of 10 cc. per pound of body weight. The subcutaneous solution is either isotonic, or one-half isotonic saline in 2.5 per cent dextrose, and in amounts of 15 cc. per pound of body weight.

The infants in this series were treated with a variety of fluids: saline, Ringer's lactate, 5 and 10 per cent glucose, one-third Darrow's solution and Butler's solution. During the first two years of the period reviewed, the fluids were given in a majority of cases by subcutaneous clysis. The past four years, intravenous administration of preoperative fluids has become almost routine. There was only a small amount of the total fluids given by the subcutaneous route in the past four years.

The most satisfactory hydration and replacement fluid used in these cases is one prepared from a mixture of Butler's solution and 5 or 10 per cent glucose in distilled water.

Lowe et al[9] have shown the value of potassium therapy in the surgical patient and its role in preventing chloride loss. Their studies show that in the patient suffering fasting, dehydration and intracellular potassium depletion due to an alarm reaction, or to an alkalosis resulting from the loss of gastric chlorides, the administration of isotonic sodium chloride may be ineffective in accomplishing extracellular repair due to sodium going with the water to the dehydrated and potassium depleted cells, and chloride being excreted in the urine. When such therapy is modified by decreasing the ratio of sodium to water, and adding potassium, there is a more physiologic hydration of both intra- and extracellular fluid compartments of the body. The chloride is conserved by the kidney, and the sodium tends to stay in its proper extracellular position.

Butler's solution[7] is prepared as follows:

66 grams or 589 cc. of molar sodium lactate solution (100 cc. or 40 cc. ampules may be used)
30 grams of KCl
18 grams of $NaCl$
15 grams of K_2PO_4
1500 cc. freshly distilled water
Filter through a glass filter; bottle in 50 cc. bottles and autoclave

When the patient is admitted to Children's Hospital, his fluid requirements are calculated per square meter of surface area, per twenty-four hour period. The surface area in square meters is obtained by the following formulas:

$$\text{Surface area in sq. meter} = \sqrt[3]{(\text{wt. in kg.})^2} \times 0.1$$

The infant's basic fluid requirement is taken as 2400 cc. per square meter per 24 hours; 3000 cc. per square meter per 24 hours is the replacement fluid required in the first day of preoperative preparation. Roughly, this is about 150 cc. per kilogram of body weight per 24 hours.

A total of 360 cc. per square meter of a so-called hydrating solution, containing 500 cc. normal saline and 1000 cc. of 10 per cent dextrose in distilled water, is given intravenously in the first forty-five minutes or until the infant voids. If the infant does not void in forty-five minutes, the rate is slowed to ten to twenty drops per minute until he does void. Then a fortified polyionic solution made with:

50 cc. Butler's solution
200 cc. normal saline
800 cc. of 10 per cent dextrose in distilled water

is substituted for the hydrating fluid and given by continuous venous drip, in the amount previously determined, as required in the first twenty-four hours. The next day, unless there is a gastric tube in place, a regular polyionic solution of:

50 cc. Butler's solution
1000 cc. 10 per cent dextrose in distilled water

is given intravenously in amounts of 24000 cc. per square meter per 24 hours.

After forty-eight to seventy-two hours of this therapy, the infant is usually well hydrated and in good preoperative condition. If there is any question of the infant's condition, it can be carefully checked with a determination of the carbon dioxide content of the serum, a serum chloride determination and an evaluation of the urea nitrogen of the blood.

If there has been a prolonged period of starvation and especially if, after hydration, there is a lowered serum protein, the use of plasma or whole blood is most valuable in overcoming the protein deficit. If anemia is present after hydration, whole citrated blood, not in excess of 10 cc. per pound of body weight, should be given preoperatively.

The infant is fed until six to eight hours before surgery. There is only a rare case in which some food does not get through the stenosed pylorus into the intestinal tract. The stomach should be emptied one-half hour before operation; then a No. 10 ureteral catheter is passed through the nose and into the stomach and taped in place. This catheter is left in the stomach during the operation. It is a convenient aid in deflating the stomach, and it may be useful in this manner to both the anesthetist and the surgeon.

Preoperative medication, excepting atropine, is not warratned in these cases. Atropine is given one-half hour before operation, and the dosage is determined according to the age of the infant.

It is routine in the hospital to wrap the infant's extremities in sheet wadding before taking him from his room to the operating room. The operating room is kept warm and preoperative preparation of the surgical field is carried out with a minimum of exposure to the infant.

Drop ether is the anesthetic of choice in most cases. Local anesthesia, with novocaine or procaine may be useful in some cases, especially in those with upper respiratory infection. The danger of poor relaxation, sudden straining, and evisceration with resultant shock must be considered in the use of this type of anesthesia. In this group of cases, fifty-one of the pyloromyotomies were done under ether anesthesia, and twenty-one with local anesthesia.

Surgery

The abdomen was opened through a right rectus incision in all of the cases in this series. The Fredel-Ramstadt type of pyloromyotomy was done in each case. Aside from accidental perforation of the duodenum in five of these patients, there was no unusual surgical difficulty encountered. There was no anesthetic difficulty of note in the operated cases. Let me here pay tribute to the anesthetists and the surgeons.

Postoperative Treatment

Postoperative feeding is started as soon as the infant is fully conscious, except in the cases where there has been a perforation of the bowel. In these cases, feeding by mouth is withheld for twenty-four to forty-eight hours, and the infant maintained on a fluid regime similar to that given preoperatively. Many different feeding schedules were used in this group of patients and, in attempting to evaluate them, the nurses' notes were carefully studied and many of the nurses interrogated as to:

1. What feeding the infant liked best.
2. The feeding on which he seemed to have less distress after ingestion.
3. The feedings that seemed to be best retained.

It is the opinion of the reviewer that the whey feeding used in a schedule similar to the one advocated by Ladd[7] is the most satisfactory of those tried.

Whey is prepared by adding five tablespoonsful of liquid rennet, or two or three junket tablets, dissolved in a small amount of water, to a pint of warm milk, heated to 100 degrees F. After the milk has coagulated, it should be placed in a cool place for one-half hour. The curd is broken with a fork, and the whey (liquid) strained through a cheese cloth. The whey is then brought to a boiling point to destroy any remaining enzyme.

The feeding schedule is as follows:

One ounce of fluid is given every two hours after the infant is fully awake.

Two feedings of sterile water.

Four feedings of whey.

Four feedings of one-half whey and one-half breast milk or formula.

Four feedings in which the whey is decreased one dram and the breast milk or formula increased by a like amount.

At the end of twenty-six hours, the infant is getting one ounce of whole breast milk, or formula. In the next four feedings, the breast milk

TABLE I. COMPLICATIONS OCCURRING IN THE CASES OF PYLORIC CASES OBSERVED IN THIS STUDY

Medical		Surgical	
Pneumonia	3	Duodenal Perforations	5
Diarrhea	3	Hemorrhage	2
Upper respiratory with Otitis media	2	Reoperation	1

One pneumonia resulted in death.

or formula is increased by one dram a feeding so that at the end of this regime, the infant is getting 1.5 ounces of breast milk or formula every two hours. The eighteen feedings will require thirty-six hours. When breast milk is not available, Olac, used in normal dilution, was found to be an excellent formula. The infant is fed by bottle and is held while fed; he is burped frequently.

Regurgitation in the postoperative period is not uncommon in the first twenty-four to forty-eight hours. Thirteen of the infants in this group stopped vomiting or regurgitating after the first twenty-four hours following operation. Thirty-one of the infants had no further postoperative difficulty after forty-eight hours. Ten had some regurgitation for three days. Two continued to regurgitate an occasional feeding for four days. One continued with occasional vomiting for five days and two had some regurgitation for six days; another for nine days. One infant did not do well after operation, vomiting some, or all of his feedings for the whole of his postoperative period. He expired twenty-two days after surgery. An infant with chlasia of the esophagus continued to vomit for weeks postoperatively, and was only controlled when the condition was recognized and proper postural treatment instituted.

Complications

The complications in this group of infants were relatively frequent. In five of the cases, the duodenum was perforated at the time of operation. The perforation was surgically closed in each instance. In these cases, antibiotic therapy was instituted at once, fluids by mouth were withheld for twenty-four to thirty-six hours, and in two of the infants, nasal suction was used the first twenty-four hours. Intravenous fluids were given to maintain the infant in fluid and electrolytic balance. In one case where the duodenum had been perforated, the abdominal wound partially broke down one week postoperatively. There was no evisceration, but the wound was resutured and the infant made an uneventful recovery. In another case in which the duodenum was perforated, the abdominal wound became infected on the third postoperative day, about the same time the infant developed a diarrhea, and had a stormy convalescence. The excellence of the fluid therapy, and antibiotics, were responsible for this infant's recovery.

Postoperative pneumonia occurred in three infants; two recovered rapidly with the aid of antibiotics and supportive fluid therapy.

One infant, who vomited persistently postoperatively, died of an aspiration type of pneumonia in spite of fair fluid, and good antibiotic therapy. This infant was a male, born October 4, 1945, and admitted to the hospital on October 30 with a history of vomiting for two weeks. The birth weight was 7 pounds 6 ounces, and the admission weight was 6 pounds 10 ounces. The preoperative fluid therapy was fair. A pyloromyotomy was done under ether anesthesia on November 2. The infant continued to regurgitate two or three times a day, but with the help of supportive fluid therapy, he was doing fairly well until November 16. His weight on that day was 7 pounds 8.5 ounces. On November 17 he became feverish, vomited all of his feedings and, in spite of antibiotic therapy, expired with an aspiration type of pneumonia. This was confirmed by postmortem examination. The infant's fluid therapy from November 17 to November 24 was not particularly good.

Upper respiratory infection with otitis media occurred postoperatively in two infants. Their response to antibiotics was excellent and the recovery was uneventful.

Diarrhea was a postoperative complication in three infants. In one infant, the disease was mild and responded readily to limitation of the diet and antibiotics. Diarrhea in the second infant developed on the tenth postoperative day. It was severe and the child required supportive fluid therapy for one week. He was discharged as cured on the twenty-third postoperative day. The third case of diarrhea occurred in one of the infants who had surgical perforation of the duodenum. This infant may have had a peritonitis. He was very ill for two weeks and needed fluids and antibiotics for this entire period. He was in the hospital thirty-six days after surgery but was discharged cured, and has remained well since.

Postoperative hemorrhage occurred in two cases. In the first of these, the infant vomited old blood and had black, tarry stools on the second postoperative day. The hemoglobin dropped 2 grams in this forty-eight hour period. Feedings were stopped and he was given a transfusion of whole citrated blood, and supported by intravenous fluids for two days. After this period, he made an uneventful recovery and was discharged on the eleventh postoperative day. In the second case, there was bleeding from a vessel in the abdominal wound, noted an hour after operation. The abdominal wound was reopened and the bleeding vessel tied off.

Reoperation was necessary in one infant. The first pyloromyotomy was done on August 8, 1950, at five weeks of age. He was discharged August 19, gaining weight and retaining feedings. He did well for three weeks. Then he vomited all feedings, lost weight and was re-admitted for x-ray examination on September 18. The roentgen examination showed evidence of pyloric obstruction and on September 21 he was reoperated upon. Another site was chosen for the pyloromyotomy and the muscle fibers carefully divided. Following this second operative procedure, the infant has done well.

One of the most unusual complications, and one not previously described as a complication, although it is considered in the differential diagnosis of this condition, was an infant with chalasia of the esophagus. He also had a congenital hypertrophic pyloric stenosis. This infant was a premature male, born August 26, 1950, weighing 5 pounds at birth. He was admitted to the hospital September 28, because of vomiting since ten days of age. His weight on admission was 4 pounds 8 ounces, and he was severely dehydrated. He had visible gastric waves and a tumor mass was palpated. X-ray examination on October 7 showed pyloric obstruction, suggestive of congenital hypertrophic pyloric stenosis. A pyloromyotomy was done on October 10 and a good-sized tumor was found. He continued to regurgitate postoperatively and did not do well. On October 24 he was re-x-rayed, and the stomach was found to be emptying normally at this examination. On November 17, because of continuous vomiting, roentgen examination was again done and a diagnosis of chalasia of the esophagus made. As soon as postural treatment was instituted, this infant did well. He was discharged November 28, weighing 6 pounds 7 ounces. The survival of this infant was dependent on the excellent fluid therapy given. The value of Butler's solution in the fluid therapy was demonstrated in this case clinically and by laboratory findings in repeated instances.

Conclusion

Seventy-two infants had pyloromyotomies performed at the Children's Hospital, St. Paul, during the past six years.

The majority (87 per cent) of the infants treated were males.

Pylorospasm is one of the most difficult differential diagnosis to make in this disease. One of the infants in this group was operated upon before the diagnosis was made.

Preoperative and postoperative fluid therapy is the most important therapeutic consideration in reducing the mortality of this disease. The value of potassium in the fluid therapy of this condition was clinically evident.

The roentgen examination is not used frequently enough in the diagnosis of congenital hypertrophic pyloric stenosis.

Complications are not infrequent. The surgical complications encountered were: perforation of the duodenum, partial separation of the abdominal wound, hemorrhage, and one case requiring reoperation. The medical complications were pneumonia, otitis media, diarrhea, and chalasia of the esophagus.

Careful diagnosis and operation before severe dehydration are necessary if we are to improve the mortality of this disease.

The mortality rate, in this group, was one death in seventy-two cases, or 1.37 per cent. This compares favorably with any group of cases reported in the literature.

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Discussion

Dr. Alexander Stewart, Saint Paul: I just want to say that this is a very fine report on the modern treatment of pyloric stenosis. I have here a paper by Dr. Walter Ramsey written in 1906, forty-five years ago, on two cases of pyloric stenosis in which the condition was diagnosed and a gastroenterostomy performed, but both infants died.

Before the days of the Fredet-Ramstedt operation, according to Holt, the mortality rate was about 50 per cent in all cases of pyloric stenosis whether treated medically or surgically. Dr. Sedgwick originally felt that there was no such thing as pyloric stenosis and treated all his cases medically as pylorospasm; he had quite a large group and I think that eventually they all recovered.

Again, I wish to thank Dr. Flanagan for this fine study of our cases in the Children's Hospital and the report of a mortality rate of only 1.4 per cent.

Dr. O. S. Wyatt, Minneapolis: I think this is a fine review of what has gone on at the Children's Hospital in the care of pyloric stenosis cases for the past five years. Dr. Flanagan is quite right in going out of his way to compliment the nurses because I am sure that without good pediatric nurses we would still be losing some of these babies, particularly those who are brought in from the country and are not in too good shape. Regarding the palpation of the tumor, I think that in most instances if one is persistent he is able to pick up the tumor. Regarding pylorospasm, I must confess that I have opened up six or seven of these infants and much to my embarrassment have not found a pyloric tumor. Strangely enough, if you incise the serosa of the pylorus in exactly the same manner that you do for a Ramstedt operation, these babies stop vomiting at once and have a recovery just as smooth as though a Ramstedt had been done.

Regarding x-ray diagnosis, I do not believe that it is necessary except in the borderline cases and where we are not positive of the diagnosis. I have seen babies vomit the barium and then inhale it and get beautiful bronchograms. This we all know is not good for our babies and should not be used except under the above-mentioned conditions. Dr. Arey, who is here this evening, had the smallest baby we have ever done a Ramstedt on. This baby weighed 2 pounds 12 ounces at the time of operation and the tumor could be palpated. Incidentally, it was one of triplets.

I think the mortality rate at Children's Hospital is a commendable one.

I wish to thank Dr. Flanagan for the privilege of discussing his excellent paper.

Dr. S. L. Arey, Minneapolis (by invitation): I enjoyed Dr. Flanagan's paper. I think the one most important thing is palpating the tumor, and I am sure all the pediatrists know the tricks but some of the general surgeons do not. If you will sit down and feed the baby, palpating the right upper quadrant just before or at the time the child vomits, you can feel the tumor.

Dr. Logan Leven, Saint Paul: I enjoyed Dr. Flanagan's paper very much. It is of practical value and presents a definite regime for management of these cases that doctors in outlying districts will be able to follow. I am sure that the good results presented in this paper are a tribute to all concerned in the management of these cases.

While in many clinics these pyloric tumors apparently have been palpated in 100 per cent of cases, I still find it difficult to feel the pyloric tumor even under general anesthesia in many cases. In this series, only one infant was operated on that did not have a tumor at operation. In the majority of the cases a palpable tumor was not noted by the clinician preoperatively. Accordingly, it seems apparent that the criteria of a good history, visible peristalsis, and projectile vomiting are sufficient in most cases to make an accurate diagnosis of hypertrophic pyloric stenosis. I am rather opposed to the use of barium for x-ray study in any obstructive lesion of the upper gastrointestinal tract in children, due to the possibility of regurgitation of barium and aspiration into the lungs. In most instances, the use of lipiodol as a contrast medium may be sufficient.

I am sure there may be a difference of opinion regarding the anesthetic of choice. Ether has been satisfactorily used in most of these cases. Likewise, all incisions have been right rectus, but I believe the merits of a transverse incision cannot be denied. When the pylorus is incised, there is always the danger of extending the incision too far onto the duodenum. The chief danger in these cases is in not recognizing entrance into the duodenum at the time of operation. If this error in technique is recognized, the opening can be closed without danger.

During the postoperative period I am quite sure that good nursing care makes considerable difference in the feeding of these children.

This has been a very valuable presentation and the paper has practical application for all practitioners in the state.

Dr. Owen H. Wangensteen, University of Minnesota: Dr. Flanagan alluded to the occasional occurrence in infants of chalasia (relaxation) of the esophagogastric juncture, a circumstance responsible for the occurrence of esophagitis in adults. He said nothing about the etiology of hypertrophic pyloric stenosis. I have observed pylorospasm of high grade in a male patient in his early thirties, whose primary disorder was mega-esophagus or cardiospasm. Neither the so-called cardiac sphincter of the esophagus nor the pyloric sphincter were hypertrophied; yet, the patient had a tremendously enlarged and tortuous esophagus and a very dilated stomach. I straightened out the redundancy in the esophagus by excising its distal 14 centimeters, together with the entire acid-secreting area of the stomach. This latter portion of the procedure precludes the occurrence of esophagitis, occasioned by the regurgitation of acid-peptic juice into the esophagus, a rather common sequel to the Heyrovsky procedure of esophago-gastric anastomosis for cardiospasm. The addition of a concomitant pyloroplasty in the case of the patient referred to above, rectified the associated pylorospasm.

Dr. Wyatt mentioned that he had seen infants with the clinical picture of hypertrophic pyloric stenosis, who presented no thickening of the pyloric sphincter, and that he performed myotomy upon the pylorus anyway. I would go along with that suggestion. In fact, I have come to think of mega-esophagus, hypertrophic pyloric stenosis and megacolon as being possibly variants of a somewhat related underlying disturbance. I have now operated upon seven patients with mega-esophagus in the manner outlined above, with very satisfactory results. None of them had a grossly detectable cardiac "tumor," such as is seen in hypertrophic pyloric stenosis. Nor do patients with megacolon have a "tumor" at the narrow constricted area in the upper rectum.

Patients with megacolon and mega-esophagus have one finding in common, viz: absence of nerve cells in Auerbach's plexus in the circular muscle. It would be interesting to know whether patients with hypertrophic pyloric stenosis exhibit this phenomenon. The stomachs of adult patients, who presented this syndrome and who have undergone gastric resection for the condition, might be studied to note whether Auerbach's plexus is abnormal, as it is in megacolon and mega-esophagus.

Hurst affixed the name of achalasia (failure of relaxation) to cardiospasm; I have come to speak of the condition as dystonia, because there is hypertonus of the distal esophageal segment and atony of the proximal reaches of the unstriated musculature of the esophagus.

Inasmuch as pylorotomy cures hypertrophic pyloric stenosis, and the Heller myotomy relieves the hypertonus of esophageal dystonia, is it likely that a similar procedure performed upon early Hirschsprung's megacolon might succeed in rectifying the situation? I think it is worth a trial in early cases.

Dr. Flanagan (in closing): I want to thank the members for their discussions. I think there has been some work done on the relationship of Auerbach's plexus in the cause of pyloric stenosis. This is referred to by Szilagyi and McGraw: Problems of infantile pyloric stenosis with particular reference to surgical treatment. Surgery, 13:764-818 (May) 1943.

THE DOCTORS' INCOME

New light is cast on the earnings of doctors by a survey conducted jointly by the Department of Commerce and the American Medical Association. It shows that the average physician earns $11,058 yearly before income tax is paid. That doesn't, of course, include any unpaid bills on his books.

Because of a concentration of physicians in large cities, the doctor there earns, on the average, less than doctors in any other community size except villages of less than 2,500. Pennsylvania doctors averaged $10,047 and those in New Jersey $9,690. In New York the figure is even lower. Eight per cent of all the doctors made $25,000 or more, and 13 per cent had less than $3,000 a year net.

All of which contradicts a picture so frequently painted. Doctors with huge incomes seem the exception rather than the rule. Considering the fact that a doctor needs to spend at least four expensive and important years more in college than entrants into most other professions, the yield is not exorbitant. A bricklayer who put in as much overtime as most general practitioners would earn more.

The figures are important at this time, when a shortage of doctors is so much discussed. The incomes do a lot to explain the shortage.—Reproduced by courtesy of *The Sunday Bulletin,* Philadelphia, Pa.

AVASCULAR NECROSIS

Report of Cases Involving the Distal End of the Clavicle and the Odontoid Process

EDWARD T. EVANS, M.D.
Minneapolis, Minnesota

RUMMEL, in 1895, wrote a classic monograph describing progressive compression of the vertebra following spine injury in which fracture was not primarily evident. His contentions have long been a matter for controversy, recently more generally accepted in the light of serial roentgenographic studies. Its occurrence is felt to be secondary to circulatory impairment following local thrombosis of the vertebral end arteries or nutrient artery.

Since Kummel's monograph, other lesions have been reported in which the question of vascular impairment as an etiological factor, in part or in whole, has been raised. The nature of the involvement of juvenile epiphyses and apophyses in such lesions has been the subject of much investigation as to whether it is infectious, neurogenic, metabolic or vascular. Osgood Schlatters' lesion of the adolescent tibial tubercle was described in 1903. Apophysitis of the juvenile os calcis was reported by Haglund in 1907. Osteochondritis deformans of the juvenile hip was described by Legg in 1910 and shortly thereafter by Perthe and Calve. In 1914 Freiberg reported osteochondritic involvement of the metatarsal head, and osteochondritis deformans juvenalis dorsi was classified as an epiphysitis by Scheuerman in 1921 with further reports by Calve and Buchman.

Another group of cases are clinically somewhat similar but involve adult bone suggesting more strongly impaired circulation as an etiological factor. Kohler's tarsal scaphoiditis, an aseptic osteitis (1908), Larson and Johansen disease of the patella (1921) previously described by Kohler (1908), Kienboch's disease of the carpal lunate (1910) and Presier's disease of the carpal scaphoid (1911) are classical examples of this group.

In 1900 Sudeck described the localized post-traumatic atrophy whose origin he thought infectious but later classified as a neuro-trophic or vasomotor atrophy. Post-traumatic atrophy of ordinary origin has been recognized since.

Tunner described bone atrophy with or without bone trauma but with definite neural injury in 1924. In 1925 Oserov (Esthonia) reported similar findings and in 1928 Ransahoff reported extensive osteoporosis of a fractured humerus in which the nutrient artery was injured. We now know that surgical trauma of bone, even mild, as in the removal of a small cortical graft from the tibia or a small osteoma from the femur may result in sufficient extensive atrophy to precipitate a pathological fracture.

Above are briefly mentioned the lesions which run the whole gamut of localized avascular necrosis or osteitis.

The classical avascular necrosis lesion, so familiar to many in late years, has been that of the head of the femur. This may occur from severe trauma, as fractures and dislocations, or mild trauma as from a single jarring blow.

Axhausen in 1928 attempted to explain these lesions on the basis of a minute embolus or thrombosis of the epiphysis or adjacent metaphysis. Phemister has done much to clarify the picture as a mild inflammatory or an embolic or thrombotic process due to a low-grade microorganism, with local necrosis followed by simultaneous absorption of dead bone and incomplete irregular replacement by new bone. Many disagree with the necessity for microorganisms, feeling that traumatic interference with the blood supply alone may initiate the process.

In 1938 I recognized avascular aseptic necrosis of the distal end of the clavicle for the first time. Thirteen other cases have since been recognized.

In 1946 our first of three cases of avascular atrophy of the odontoid process was observed.

Of these the following are typical.

Avascular Necrosis of the Distal End of the Clavicle

Case 1.—R.K. In October of 1937 this all-American football player was first seen having suffered a painful blow over the distal end of the clavicle. X-rays were negative. In January of 1938 I saw this patient again at which time he had local thickening of the outer clavicle, painful acromioclavicular motion. An x-ray showed a bulbous enlargement of the outer end of the clavicle, obvious clavicular cartilage base changes (subchondral) but a normal appearing acromial portion of the joint.

Presented before the Minnesota Academy of Medicine, March 14, 1951.

Case 2.—M.C. Early in November of 1939 this all-American injured his clavicle in similar fashion. By spring vacation, 1940, the acromioclavicular function was painfully and persistently impaired. The local and x-ray findings were similar to the preceding case. Excision of the clavicle distal to the coraco-clavicular ligament was carried out. The segment was grossly enlarged, and the clavicular cartilage was degenerated, while that of the acromium was normal in appearance. Microscopic examination showed a lesion similar to that found in aseptic necrosis of the head of the femur.

Case 3.—W.B. It has been my good fortune to have recently observed the development of this lesion over a period of months.

On February 20, 1947, this young man of seventeen years, captain of the Breck hockey team, was struck directly over the outer left clavicle with a hockey stick. On examination the joint was stable and not effused but there was local tenderness of the distal inch of the clavicle. X-rays on February 21 were negative. The patient was instructed to report at intervals for further x-rays on April 15, June 2, December 24, 1947, and March 3, 1948. During this period progressive periosteal and osseous bulbous enlargement occurred, and there was evidence of a degenerative subchondral type of irregularity of the distal clavicle without similar change on the acromial side of the joint. The patient stated that use of the shoulder produced such discomfort that he was limited in his athletic enthusiasm and that he would welcome surgery for relief. On June 21, 1948, excision of the clavicle distal to the coraco-clavicular ligament was carried out with relief of symptoms.

Case 4.—L.B. This twenty-eight-year-old patient was first seen by us on November 13, 1950, with a history of having sustained an acromio-clavciular separation on October 30, 1949. The shoulder was strapped for one week, and he was seen by three different doctors who told him the shoulder would take care of itself. In July, 1950, he started chiropractic treatments which consisted of pushing the clavicle downward once a week and associated heat treatments. After a period of three months of such treatment the soreness subsided and the patient was happy with the result. X-rays were taken and showed spontaneous absorption of the distal end of the clavicle.

I take no credit for the end result but I do feel the x-ray shows that avascular necrosis has occurred in the distal end of the clavicle.

Avascular Necrosis of the Odontoid Process

Case 5.—M.H. I first saw this patient on January 14, 1947. He was twenty-seven years of age. On August 13, 1946, he fell from a refrigerator car striking his head.

On August 14, 1946, an x-ray of the cervical spine showed a possible fracture line on the right side of the dens just lateral to the odontoid and extending into the base of the dens. There was no loss of alignment.

On August 17, repeat x-rays were negative. The above findings were confirmed by Dr. Rigler so the patient was discharged from the hospital on August 19. On August 26 the patient had developed severe pain in the neck so on August 30 he was readmitted to the St. Cloud Hospital. On September 7 the patient was fitted with a Thomas collar and was discharged on September 17, 1946. On October 25, 1946, he was quite comfortable so the collar was discontinued. He was considered well on November 25, 1946 and was to be discharged from care, but, with excellent judgment, his attending physician advised a final x-ray check.

The report follows: ". . . cervical spine now shows a definite irregular area of rarefaction extending from one side of the odontoid process to the other. The . . . process is moderately decalcified. It is now apparent that the line previously seen actually did represent a fracture line. No displacement. Marked decalcification about the fracture line."

The Thomas collar was reapplied.

On January 2, 1947, x-rays showed "slight further decalcification of the odontoid process."

On examination of the patient and on history there have been no neurological disturbances.

On January 14, 1947, x-rays by Dr. Malcolm Hanson confirmed the above reported findings.

On March 4, 1947, x-rays disclosed a moderate recalcification.

On May 1, 1947, there was further improvement.

On July 8, 1947, x-rays showed no essential change. The patient was seen at intervals and on December 7, 1948, x-rays were reported as follows: "Fracture involving the base of the odontoid process. There has been some absorption of bone at the fracture site with subsequent callus formation. The area of absorption has not been obliterated by callus."

I am indebted to Dr. J. A. Raetz of St. Cloud for his excellent co-operation in the follow up of this case.

These cases in my opinion add much to the support of the thesis that traumatic disturbance of the blood supply in the absence of infection may lead to avascular necrosis.

As far as I can find, this is the first report of avascular necrosis or atrophy in these locations.

Discussion

Dr. Evans (in closing): I would like to say just one thing and that is that if you look for this you will find it. These cases are not all surgical by any means. Out of fourteen cases, only six patients have had the distal end of the clavicle excised. I think this can occur from repeated trauma. One man was in a foundry and had to carry heavy loads on his shoulders.

Dr. E. M. Hammes, Saint Paul: What is the industrial attitude about these cases from the standpoint of compensation?

Dr. Evans: I have had three patients who were in industry and who had had persistent trouble. It really limits their effort of lifting, et cetera. They go on to what is a post-traumatic arthritis. The excision of the distal end of the clavicle will cure it. In none of the other cases have we had any disability; their shoulders are stable. We don't take enough of the clavicle out to reduce the stability.

PULMONARY TUBERCULOSIS AND CARCINOMA

GUSTAF A. HEDBERG, M.D.
Nopeming, Minnesota

GEORGE G. GRAHAM, M.D. and WILLIAM H. WIERMAN, M.D.
Rochester, Minnesota

THE COEXISTENCE of pulmonary tuberculosis with malignant disease becomes commoner as the average age of the group in whom tuberculosis is found increases. Twenty years ago when this disease existed largely among adolescent and young adult groups, we rarely had the problem of treating conditions other than tuberculosis in the sanatorium. Today at Nopeming Sanatorium, while 57.5 per cent of the women patients are between twenty and thirty-five years of age, 58.5 per cent of the men are more than fifty years of age. It is in the latter group particularly that we are finding malignant disease, not only in other parts of the body but in the lungs as well.

Our experience with pulmonary carcinoma at Nopeming is weighted by the fact that, in addition to admitting patients with a preadmission diagnosis of tuberculosis, we also have accepted for diagnostic studies patients with pulmonary infiltrates of unknown etiology. A review of the incidence of malignant disease at Nopeming during 1948, 1949 and 1950 showed that eighteen patients with pulmonary tuberculosis also had malignant disease in other organs and eight had pulmonary tumors (seven bronchogenic carcinomas, one adenoma), for an incidence of combined disease in 3.1 per cent of the total admissions. In addition, pulmonary carcinoma was diagnosed in eighteen cases in which active tuberculosis was not demonstrated. With 1 exception all persons in whom carcinoma was demonstrated were more than fifty years of age and with four exceptions, all were men. A twenty-year-old Indian girl was found to have a bronchial adenoma together with pulmonary tuberculosis and a forty-seven-year-old woman had bronchial adenoma alone. A twenty-five-year-old tuberculous man was found to have a lymphoblastoma.

In our experience we have been impressed by the high incidence of all types of malignant lesions. The primary object of this paper, however, is to discuss the problems of pulmonary carcinoma and tuberculosis from the standpoint of diagnosis. Six patients with combined disease were treated in general hospitals for carcinoma before it was discovered that they had tuberculosis, and nurses and hospital personnel were unknowingly exposed to the major health hazard of this group. Had roentgenograms been taken as part of the routine of hospital admission this hazard would not have occurred.

In the group having combined pulmonary carcinoma and tuberculosis as well as in the group having pulmonary carcinoma alone, significant differences were not revealed by the histories. The symptoms of the entire group revealed the findings which are common to pulmonary lesions of this type. All had cough, either productive or nonproductive. Of this group, 70 per cent had lost from 5 to 30 pounds (2.3 to 13.6 kg.); 33 per cent had histories of hemoptysis. Many of those who had carcinoma alone gave histories of having had contact with tuberculosis. In spite of the fact that many of these patients had symptoms of more than a year's duration, in the majority of cases the pulmonary lesion was discovered by the Mobile Unit Chest Survey. The means of diagnosis for the eight patients having pulmonary neoplasm and tuberculosis are shown in Table I.

One patient had negative results from a Mantoux test in spite of the fact that tuberculosis developed in guinea pigs inoculated with gastric contents. In the patients who underwent operation tuberculosis was not reported by the pathologist. All resections were done elsewhere, and in two cases the results of gastric inoculations were not known until several weeks after operation had been performed. One patient underwent exploratory thoracotomy, at which time the preoperative diagnosis of carcinoma was confirmed by removal of a metastatic hilar node. In view of the fact that in all cases in which necropsy was performed both carcinoma and tuberculosis were demonstrated, the

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Dr. Hedberg is Superintendent and Medical Director, Nopeming Sanatorium, Nopeming, Minnesota, and Drs. Graham and Wierman are Fellows in Surgery, Mayo Foundation, University of Minnesota, Rochester, Minnesota.

Read at the meeting of the Minnesota State Medical Association, Rochester, Minnesota, April 30, 1951.

possibility of laboratory error in this group is doubtful, except possibly in Case 3, reported later in the paper, in which results of the tuberculin test were negative.

TABLE I. MEANS OF DIAGNOSIS OF CARCINOMA AND PULMONARY TUBERCULOSIS

Case	Roentgenograms	Sputum		Culture or inoculation of guinea pigs	Biopsy of bronchial specimen	Operation	Necropsy	
		Carcinoma	Acid-fast bacilli				Carcinoma	Tuberculosis
1	Pos.	—	Pos.	Neg.	Neg.	—	Pos.	Pos.
2	Pos.	Pos.	Neg.	Pos.	Neg.	Pos.*		
3	Pos.	Neg.	Neg.	Pos.	Neg.	Pos.*		
4	Pos.	Neg.	Pos.	Pos.	Pos.†	Pos.		
5	Pos.	—	Pos.	Pos.	—	—	Pos.	Pos.
6	Pos.	Pos.	Pos.	Pos.	Neg.	—	Pos.	Pos.
7	Pos.	Neg.	Pos.	Neg.	—	Pos.*		
8	Pos.	—	Pos.	Pos.	Neg.	—	Pos.	Pos.

*Tuberculosis not reported.
†Bronchial adenoma.

TABLE II. BRONCHOGENIC CARCINOMA
Tuberculosis Not Demonstrated

Means of diagnosis	Number of cases	Results	
		Positive	Negative
Mantoux test	14	12	2
Carcinomatous cells in sputum	8	6	2
Acid-fast bacilli	16	0	16
Culture or inoculation of guinea pigs for tuberculosis	16	0	16
Biopsy of bronchial specimen	5	2	3
Biopsy (other)	2	2	0

TABLE III. PULMONARY TUBERCULOSIS AND MALIGNANT DISEASE
1948 through 1950

	Cases	Per cent
Pulmonary malignant disease	16	67
Pulmonary malignant disease and tuberculosis	8	33
	24*	100
Resection	7	29
Inoperable at thoracotomy	4	17
Medically inoperable	10	42
Operation not performed	2	8
Not diagnosed	1	4

*Total does not include one case of bronchial adenoma alone and one case of lymphoblastoma associated with pulmonary tuberculosis.

Means of diagnosis other than exploratory thoracotomy or necropsy in cases of bronchogenic carcinoma in which active tuberculosis was not demonstrated are shown in Table II.

The preponderance of positive results for Mantoux tests in this group is significant not only in the fact that this test is of no value in differential diagnosis but also in the fact that it demonstrates that most patients in the group in which carcinoma was proved have a tuberculous infection. When it is realized that tuberculosis may develop when an infected person becomes debilitated, it will be realized that in some cases superimposed active tuberculosis could have developed. The disposition of the cases of pulmonary malignant disease, with or without tuberculosis, is shown in Table III.

The study of sanatorium patients in this group averaged sixteen days. However, the average time before those patients who underwent resection were operated on was six weeks, because of indecision on the part of the patient and the fact that arrangements for operations had to be made elsewhere. One patient who was advised to undergo resection refused surgical intervention. Another patient died of advanced pulmonary tuberculosis but necropsy revealed the presence of an unsuspected bronchogenic carcinoma. Table III does not include two cases, one case of lymphoblastoma associated with pulmonary tuberculosis and one case of bronchial adenoma alone. This latter case was of particular interest because of false-positive results of a sputum cytology test. One other instance of a false-positive result was encountered in our experience; the patient had a middle lobe syndrome. In the brief reports of cases which follow, roentgenograms were not necessarily characteristic of bronchogenic carcinoma and they did not always reveal evidence of combined carcinoma and tuberculosis.

Report of Cases

Case 1.—A man, sixty-six years of age, was admitted to Nopeming Sanatorium February 1, 1950, with combined tuberculosis and bronchogenic carcinoma. Diagnosis was confirmed both by demonstration of tubercle bacilli in the sputum and gastric contents and by demonstration of neoplastic cells in the sputum and bronchial washings. He died February 22, 1951, and necropsy revealed far-advanced tuberculosis of the right upper lobe with cavitation and bronchogenic carcinoma in the same lobe.

Case 2.—A man, fifty-two years of age, was transferred to Nopeming Sanatorium as a candidate for thoracoplasty on March 22, 1950. Each month a specimen of sputum had been sent to the State Board of Health and each specimen was reported to have been positive up to the time of his transfer. On his admission at Nopeming Sanatorium physical examination revealed a tender swollen right arm, Horner's syndrome associated with ptosis of the right upper eyelid, and unilateral perspiration on the right side of his face. Tubercle bacilli were not demonstrated in tests at Nopeming. A diagnosis was made of probable pulmonary sulcus tumor (Pancoast), and after twenty-nine days arrangements were made to transfer him to the University Hospitals at Minneapolis. He died several days after extensive surgical measures and necropsy revealed carcinoma of the apex of the right lung involving the brachial plexus. Tuberculosis was not demonstrated by the pathologist who examined the specimen.

Case 3.—A woman, fifty-four years of age, was admitted to Nopeming Sanatorium September 13, 1950, as the result of a roentgenogram taken by a Mobile Unit and a diagnosis of pulmonary infiltration in the upper portion of the left lung. The diagnoses considered were pulmonary tuberculosis and carcinoma. Tubercle bacilli were not demonstrated and the result of the tuberculin test was negative. Several specimens of sputum failed to reveal definite presence of malignant cells though there was some question in the pathologist's mind. Because of a suggestion of bronchial occlusion and the inability to definitely rule out malignant disease, exploration was advised after six days' hospitalization. Cut section of a specimen removed for biopsy revealed an adenocarcinoma of the apex of the left lung. Several weeks after resection a guinea pig inoculated with gastric contents from the patient taken at the time of the sanatorium study was found to have tuberculosis. However, the surgical procedure, which to date has been successful, was not delayed by waiting for this laboratory data. Had we waited and received this report of positive results it is possible that the prolonged delay might have resulted in consideration that the patient had tuberculosis alone. Tuberculosis has not been demonstrated in the surgical specimen although the possibility of a laboratory error must be considered.

Case 4.—A woman, twenty-one years of age, was admitted to Nopeming Sanatorium March 28, 1950, with a proved diagnosis of pulmonary tuberculosis made earlier in another institution. She was transferred to Nopeming ostensibly for thoracoplasty. Examinations of sputum gave negative results for tuberculosis at the time of her admission but a guinea pig inoculated with gastric contents was found to show positive evidence of tuberculosis. Owing to findings at the hilus of the left lung, bronchoscopy was done previous to consideration of thoracoplasty. A pedunculated tumor was found obstructing the bronchus of the left upper lobe. Biopsy of this tumor revealed a bronchial adenoma. The patient was transferred elsewhere for resection which was accomplished, and the preoperative diagnosis of bronchial adenoma and tuberculosis was confirmed.

It is hoped that the presentation of this material will emphasize the fact that with the increasing age of persons having tuberculosis, particularly men, the incidence of combined tuberculosis and carcinoma is high; and further, that bronchogenic carcinoma and pulmonary tuberculosis can be coexistent. The danger of allowing a pulmonary malignant lesion to progress beyond the possibility of surgical intervention by suspecting tuberculosis rather than carcinoma as the cause of pulmonary infiltrations cannot be overemphasized. In the three cases in our series in which tuberculosis was demonstrated by inoculation of guinea pigs or culture, patients were sent for operation without awaiting results of laboratory findings. With the increasing safety of surgical procedures on the thorax, exploratory thoracotomy should be advised in all cases wherein bronchogenic carcinoma in an operable state is suspected. From the standpoint of public health it is hoped that our experience will impress the physicians with the fact that the demonstration of a malignant lesion in the lung or elsewhere does not rule out the possibility of a coexistent active tuberculosis which, if unknown, could result in innocent spread of this disease to hospital personnel and others associated with the patient. It is to be emphasized that debilitating conditions such as carcinoma can and often do cause latent tuberculosis to become active.

COUNTRY DOCTORS HAVE IT BETTER

Not the least of the satisfactions that compensate the physician who chooses to practice in a small city or town is a higher average income than his colleague in a large metropolitan center earns, according to cold figures compiled by the United States Department of Commerce. He not only has a larger dollar income, but his real income advantage is even greater, in view of the well known fact that living is more expensive in thickly congested urban areas. This inducement, plus the opportunity to be of service where they are most needed, should go far toward correcting the apparent shortage of doctors in rural communities.

The income survey, in which 55,000 physicians assisted, offers economic proof that a nation-wide shortage of physicians does not exist, as proponents of socialized medicine like to argue. Physicians' incomes have risen percentagewise in almost exact proportion to the average income of the American people, which suggests that supply and demand are rather nicely balanced. On the other hand, the income differential within the profession itself suggests there actually is an over-supply of physicians in the big cities. The significance of this fact will not escape the young medical graduate looking for a place to hang out his shingle.—*Indianapolis Star.*

CYTOLOGIC DIAGNOSIS OF UTERINE MALIGNANCIES

ARTHUR H. WELLS, M.D.
Duluth, Minnesota

THE purpose of this presentation is a practical evaluation of exfoliative cytologic diagnostic procedures for the detection of uterine malignancies. A by-product of the recent widespread interest in cytologic and biopsy studies of the cervix is a revival of a study of the earliest manifestations of carcinoma of the cervix.[49,53,54] Since it is generally agreed by some of the best authorities that these changes, namely, carcinoma *in situ,* are most easily detected by cytologic diagnostic procedures and since this malignancy and the cytologic means of recognizing it could be the best way of controlling cancer of the cervix, I shall first give you my impressions of intraepithelial malignancy of the cervix. This will be followed by a review of laboratory methods of diagnosis, indications for cytologic and biopsy techniques, common mistakes and economic considerations.

Carcinoma In Situ

Definition.—An *in situ* malignancy is a noninvading irreversible anaplasia of cells. It is entirely likely that there are two general types of *in situ* malignancy: those which have the capacity of immediate invasion and the group which cannot invade and yet have all the other histologic traits of malignancy. The latter seemingly must await further metabolic changes which will permit ingress to normal adjacent tissues. Both *in situ* lesions are the first established phase of most types of cancer. Frequently observed examples include lesions of the lips, skin, vulva, gastrointestinal tract, endometrium, cervix and breast (Figs. 1 to 5). This first phase is extremely transient in some malignancies and prolonged for many years in others. Theoretically the varieties found in a given type or location of a malignancy blend into each other. A focal area of *in situ* carcinoma is a commonly observed complication of benign papillary adenomas of the gastrointestinal tract. There is no sharply dividing line between the common benign keratosis following x-ray or sunlight exposure and an irreversible noninvading squamous cell malignancy. This probably also holds for the precursors of the common type of intraepithelial malignancy of the cervix. Until the lesion is well established, it may frequently appear in controversial transitional forms.

Clinical—Carcinoma *in situ* of the cervix is most often symptomless and exists in a grossly normal or only mildly eroded cervix.[8,13,16,18,21,25,43,46] Occasionally metrorrhagia or bleeding with trauma is the only indication of its presence.[48] Its frequency approximates one or two in 500 apparently normal women.[28,47,57] In some physicians' office practices, it may occur as often as one or two in 100 women patients.[13,24,25] A knowledge of the exact frequency must await additional reports. Although it has been found throughout womanhood, the average age is between thirty-five and forty years, while invading cancer of the cervix has an average age occurrence at approximately forty-eight years.[46] This indicates a possible average duration of the *in situ* state of from eight to ten years, a wide margin of time for control measures.

The proof of the inevitable invasive nature of carcinoma *in situ* is found in at least eighteen cases reported in the literature,[16,41,61] where the ingressing malignancy occurred as much as twelve years after a biopsy was taken from the intraepithelial malignancy. Of greater importance is the frequent occurrence of small early invading malignancies in typical relatively large *in situ* lesions and the frequent remnants of *in situ* lesions in even advanced malignancies of the cervix. The common observation of intraepithelial carcinoma of the lip and skin[5] reinforce the concept of the cervical analogue.

Morphologic Identity—As visualized by low power objective, the squamous epithelium of a part of the cervix is transformed into a very cellular and hyperchromatic layer of cells (Fig. 6).[31] On closer study, it is found made up of compact cells with large dark-staining nuclei and a relatively small amount of cytoplasm (Fig. 7). The normal orderly stratification of epithelial cells

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From the Department of Pathology, St. Luke's Hospital, Duluth, Minnesota.

Presented at the annual meeting of the Minnesota State Medical Association, May 1, 1951, Rochester, Minnesota.

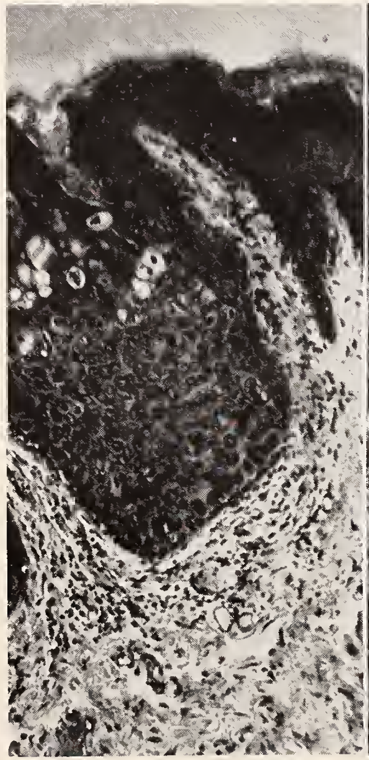

Fig. 1. Margin of carcinoma *in situ* of vulva with hyperkeratotic and otherwise normal epidermis to the right.

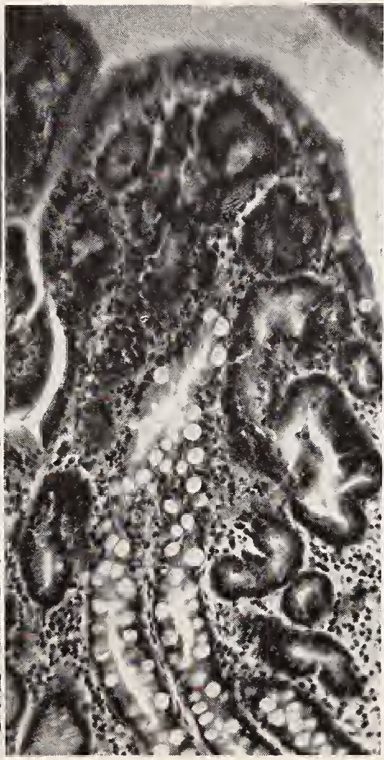

Fig. 2. Anaplastic gland to right of a near normal gland in the center. This is from the margin of an anaplastic noninvading lesion 1.5 cm. in diameter adjacent to a gastric ulcer.

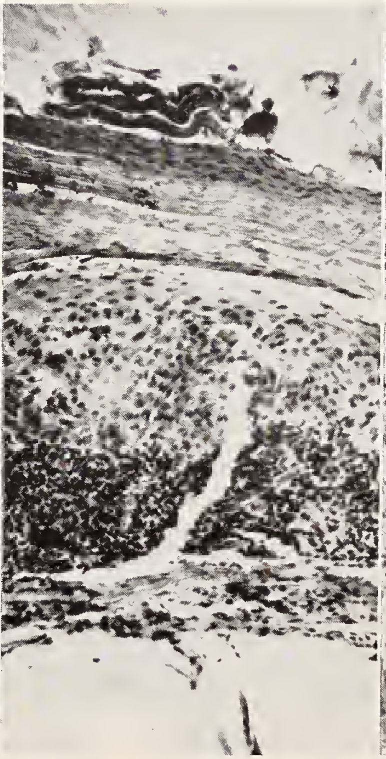

Fig. 3. Preinvading squamous cell carcinoma of the lip on the basis of a keratosis.

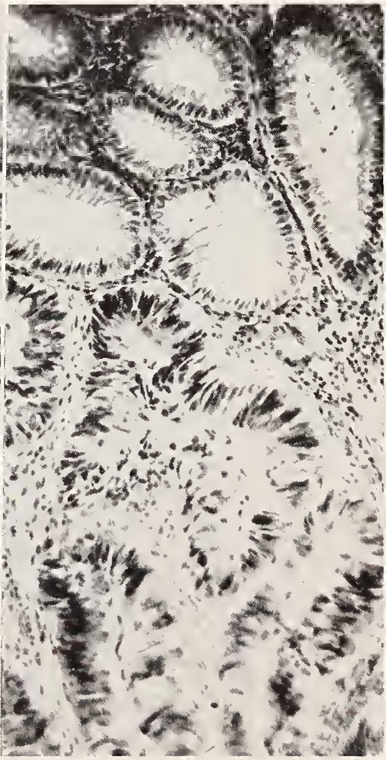

Fig. 4. The lower glands are a part of a small area of malignant alteration of the large papilloma of the colon as seen in the seven upper glands. No invasive tendencies were found.

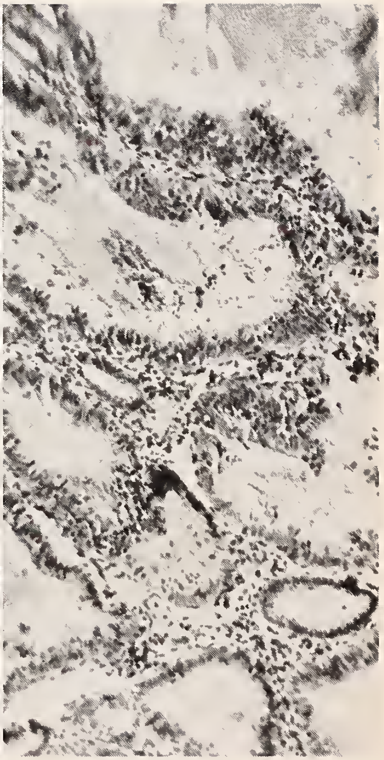

Fig. 5. Anaplasia in endometrial glands without demonstrable invasion.

in the stratum germinativim and the palisading of the basal layer is completely disrupted. A loss of polarity of nuclei is combined with considerable variation in size and shape of nuclei typical of squamous cell cancer. The same anaplastic changes frequently replace cervical glandular structures yet the basement membrane remains intact until true invasion occurs.

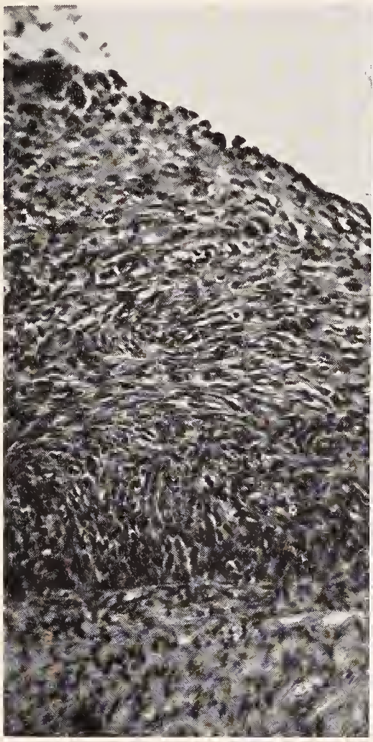
Fig. 6. Low power view of carcinoma *in situ* of the cervix with greatly increased cellularity, loss of orderly arrangement of cells, hyperchromatic staining of nuclei and great variation in size and shape of cells.

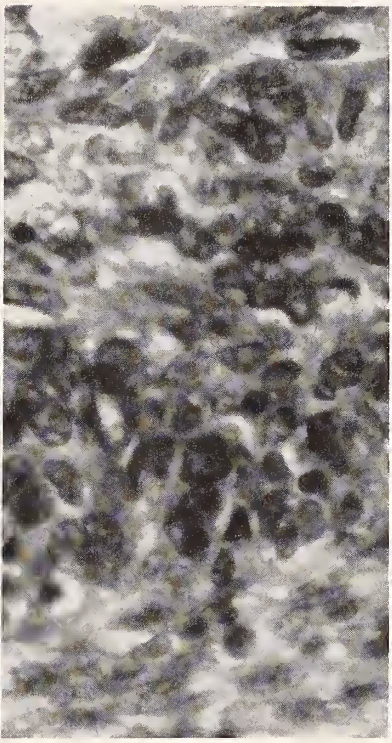
Fig. 7. High power view of Figure 6, lower margin of epidermis near the bottom of the photomicrograph.

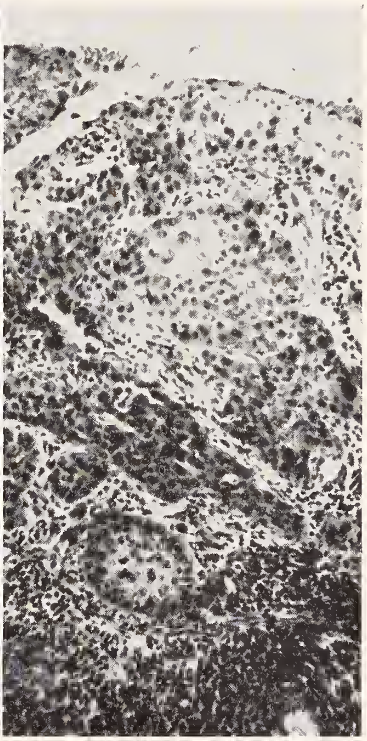
Fig. 8. Early, small area of invading squamous cell carcinoma of cervix. Notice the near normal epidermis at top to right.

Classification—A review of our experience in 100 biopsies of invading carcinomas of the cervix (a poor source of material at best) reveals four possible types of origin of squamous cell malignancies. Each may be unicentric or multicentric. They include: (1) A frequent type of low grade slowly spreading (not invading) intraepithelial malignancy not necessarily preceded by leukoplakia or squamous cell mataplasia (Figs. 6 and 7). (2) A frequent rapidly invasive type of malignancy with only a transient *in situ* phase which is not likely to be found before invasion occurs (Fig. 8). Types 3 and 4 are less well defined. They are obvious sequelae of leukoplakia of the portio vaginalis and squamous cell metaplasia of the endocervix. Type 1 is the commonly known type of carcinoma *in situ,* representing one of the most widely discused, current gynecologic topics. In our study of cervical biopsies it might well have given rise to more than half of the squamous cell carcinomas of the cervix. The exact frequency of this type of onset of cervical cancer is of the greatest importance, and yet it remains to be determined. The invading offspring of this type of carcinoma *in situ* is frequently at high-grade malignancy which untreated will undoubtedly kill within a few years. Even after invasion starts there may well be a period of increasing growth momentum of an appreciable time.

Pregnancy—One of the most controversial and important present-day problems in obstetrics is the differential diagnosis of carcinoma *in situ* and reversible severely hyperplastic changes fairly frequently found in the cervices of pregnant women.[7,8,9,15,24,30] Many authors are now insisting that "carcinoma *in situ*" changes in the cervix disappear after the pregnancy; therefore, radical therapy is not indicated. Others perform hysterectomy or Wertheim procedures. Some are certain that they can differentiate cancerous from reversible hyperplastic histologic changes. This new problem urgently needs clarification before a great deal more injury is perpetrated.

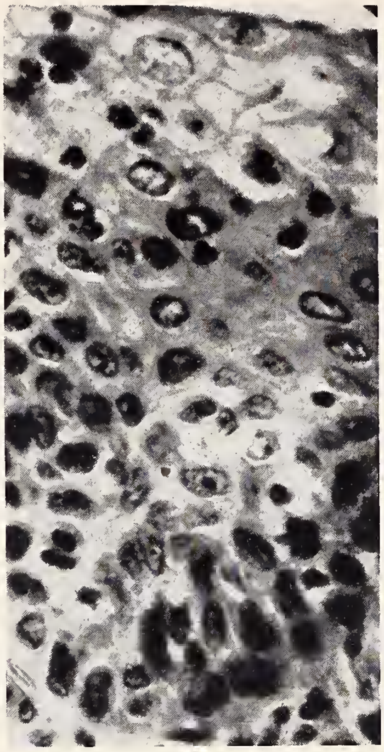

Fig. 9. High power view of hyperplastic cervical epidermis in pregnancy with loss of polarity of cells, also swelling, hyperchromatic staining and distortion of shapes of nuclei throughout the thickness of the epidermis.

A nineteen-year-old pregnant woman developed a most severe cervicitis. The biopsy revealed a remarkable hyperplasia with loss of polarity in the basal cells, hyperchromatic staining of swollen nuclei, variation in size and shape of nuclei and numerous mitotic figures (Fig. 9). This patient was followed closely without radical therapy. Three years later, after having gone through two pregnancies, her cervix appears quite normal and smears do not contain cancer cells.

Treatment.—The procedures used for treatment of carcinoma *in situ* of the cervix include local resection, cautery, conization, trachelotomy, hysterectomy, pan-hysterectomy, radiation therapy and the Wertheim operation.[16,42,46,60] The diagnosis of carcinoma *in situ* is never established until the entire surface of the cervix and of the endocervix has been examined microscopically to reveal the absence of invasion in isolated or multicentric areas.[42] It is apparent that a minimum therapy is trachelotomy, so this fact can be determined. The specimen obtained by this procedure must be subjected to a careful histologic study as illustrated in Figs. 10 and 11. If no invading malignancy is found, the lesion is within the limits of the resected tissue following this serial block microscopic study and there is a good reason for preserving the uterus then, the therapy can be considered adequate. If not, a more extensive therapy is indicated. Where the facilities for this careful pathologic examination are not available, a minimum hysterectomy is indicated with possible radiation therapy alone or before and or after surgery. The extent of the malignancy in the hysterectomy specimen should be studied, contemplating postoperative radiation therapy.

Laboratory Methods of Diagnosis

Cytologic.—The principal cytologic techniques[3] of diagnosis of uterine neoplasms include: pipette aspiration or cotton tipped applicator collections of material from the vagina, cervix, cervical canal and endometrial cavity; also surface scrapings from the cervix obtained by dull applicators[3] and "sponge biopsy" procedures.[17] Direct smears are made of materials obtained by the above means on glass slides and placed immediately, before drying, in equal parts of ethel alcohol and ether or simply in 95 per cent alcohol. After an hour or more of fixation, these slides can be stained by one of several good methods or a drop of glycerine can be applied before covering with another slide and sending the preparation to a specialist for interpretation. The sponge biopsy and mucous secretions obtained can be studied by paraffin sectioning technique as well as by the smear method.

All of these procedures of obtaining cells for cytologic studies have proved successful in the hands of their advocates. Little can be gained by comparing the possible accuracy of the various methods. It has been repeatedly shown that combinations of the procedures are better than a single test. Thus it is not unusual for some authors to prepare smears from each, the vagina, cervix, and cervical canal. Obtaining material from the posterior cul-de-sac through aspiration pipette or on a swab which is protected in its passage through the vagina by plastic, rubber or

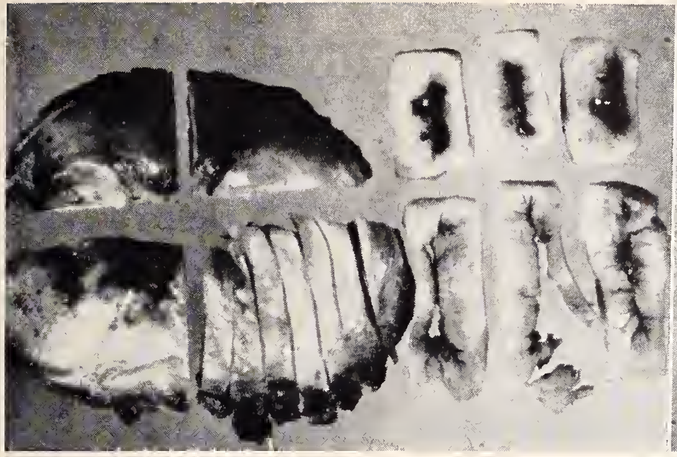

Fig. 10. The cervix is cut in quarters then sliced thin. The endocervix is cut horizontally.

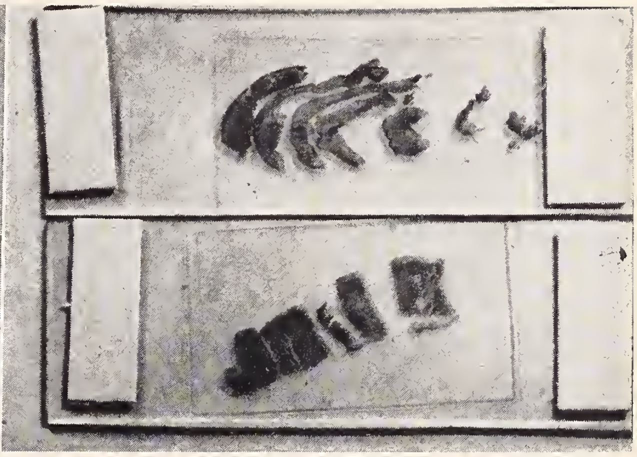

Fig. 11. The upper slide has all the blocks from one quarter of the cervix with deep connective tissues discarded. The lower slide has all the endocervix specimens.

heavy paper tubing is extremely economical in screening procedures involving large numbers of examinees where the service of a physician and direct visulization of the cervix are not feasible.[29] While smears obtained by rubbing the surface of the exposed cervix would seem to be more likely to obtain a higher concentration of cervical cancer cells than the diluted cul-de-sac collections of desquamated cells from the entire Muellerian tract.[3,13]

Mechanical screening devices are being developed by Papanicolaou and others in the hope that a high per cent of the negative smears can be discarded without wasting any time on these slides. This might be accomplished by the use of radioactive stains having an affinity for cancer cells or by other concentration and staining techniques.

Biopsy.—The widely used biopsy methods of diagnosing uterine malignancy include the use of: scalpel, cutting punches, sharp-edged scraping instruments,[41] electrocautery, conization procedures[23] and dilatation and curettage of the endometrium. It is apparent that cervical curetting or scraping procedures[41] intending to obtain thin intact sheets of epidermis from all parts of the cervix have a distinct place in cervices where there is no obvious site of cancer. This should be a routine procedure with every dilatation and curettage operation. The two specimens must be kept separate. Multiple biopsies are also useful in normal or near normal cervices.[51] It has been shown[12] that a biopsy of either the anterior or posterior leaflet alone will disclose only one half of the existing carcinomas *in situ* and approximately 80 per cent when both are taken. The addition of biopsies from the lateral aspects of the cervical os will disclose all but a few unusual carcinomas beginning high in the cervical canal.

Indications for Cytologic and Biopsy Techniques

Cytologic Criteria.—The method of diagnosis of malignancy through the study of small clumps of cells or single cells in smears or paraffin sections obtained from sputum, cavity fluid, gastric washings, vaginal or cervical exfoliations or urine, has beyond any question established itself as a useful procedure. The criteria of malignancy in the cells from these widely separated sources are essentially the same. The anaplastic intracellular traits are magnified in smear preparations over those found in solid tissue studies. This somewhat compensates for the failure to visualize any invasive tendencies, abnormal mitoses and altered polarity on the part of the cancer cells as best seen in biopsies. These deficiencies and the extreme sparsity of cancer cells in many "cytologic" technique preparations make the latter much more time consuming and difficult. In all such procedures negative findings do not rule out the presence of cancer, while the finding of cancer cells must be substantiated wherever possible by more dependable methods before radical therapy is instituted.

Generalizations.—A review of the more recent abundant literature on the subject of the diagnosis of uterine malignancies reveals a surprisingly wide agreement among the authorities on a number of essential points.

1. The smear and biopsy are complementary procedures and should not be considered in conflict.[8,38,42,60] When carcinoma *in situ* lesions are included the combined accuracy of the two tests may be 98.3 per cent, whereas separate each may have a 10 per cent error.[1,19] The indications for both are fairly well defined.

2. Given an overt or "target lesion" always use the biopsy.[20,42]

3. Given a patient with intermenstrual or post menopausal bleeding of traumatic or spontaneous origin or persistent unexplainable discharge always do a biopsy and/or a dilatation and curettage. A supplementary smear study in this instance would be a good practice.[14]

4. The smear diagnosis of malignancy must always be substantiated by biopsy and/or dilatation and curettage, before definitive therapy is instituted.[26,29,38,39,51]

5. The most competent examiners find the smear method more accurate than a single biopsy in the detection of carcinoma *in situ* in normal appearing cervices.[24,41,42,54,57,58]

6. In the near normal cervix properly preformed epidermal curetting procedures using a sharp margined spoon,[41] scalpel or curette could surpass cytologic methods in accuracy. Only a slight oozing of blood is to be expected whereas multiple biopsies may require hospitalization. A wide application of the procedure is indicated.

7. The smear procedures are most useful in the screening of large numbers of apparently healthy women for cancer.[4,29,39,41,42]

8. In the hands of experts, false negative smears for carcinoma of the fundus approximate between 10 and 20 per cent. Some pathologists will verbally admit a 50 per cent error.

9. Because of this large possible error and since all but a very few cases of cancer of the fundus give sufficiently early clinical evidence of their presence, cytologic diagnostic procedures should be aimed primarily at detecting cancer *in situ* of the cervix and not fundal carcinoma.

10. The division of cells found in smear examinations into several degrees of "precancerous changes" is not warranted.

11. Smears are generally considered useful in follow-up of radiation therapy.[14,50,51]

12. Patients with repeatedly positive smears must be followed with the greatest care in spite of repeatedly negative cervical and endometrial biopsies.[20]

Common Mistakes

Common present-day mistakes include: (1) The widespread belief that all cancer of the cervix can be seen as an irregularity, ulceration or tumor mass; (2) the infrequency of taking multiple biopsies or epidermal thick scrapings from the cervix; (3) the failure to take cervical smears in patients who want and can afford this protection against cancer; (4) the failure to obtain biopsies of the cervix and endometrium and possibly cytologic smears from all patients with intermenstrual or post menopausal bleeding or unexplained discharge; (5) the frequency with which the cervical biopsy is mutulated and much of the epithelial surface is destroyed particularly when the electric cutting instruments are used; (6) many biopsies do not include the squamo-columnar junction and generally should be considered inadequate; (7) failure to obtain good epidermis, thin scrapings or multiple biopsies from the cervix separably from the portio vaginalis and endocervix routinely with every "dilatation and curettage" operation; (8) the idea that biopsies are infallible; (9) failure to obtain multiple biopsies preceding cautery therapy of the cervix; (10) the belief that cytologic diagnoses are a physician's office procedure. Years of disciplining in microscopic diagnostic methods, the experience of many false reports and the determined patience of a brooding hen are necessary for success.

Economic Considerations

The ultimate goal in the use of cytologic procedures for the diagnosis of uterine malignancies is sometimes considered to be the saving of the lives of over 2 per cent of all women over thirty years of age now living, who would eventually die of these malignancies. According to the National Office of Vital Statistics 17,120 women die in the United States in a single year from cancer of the uterus or 0.395 per 100 female population annually or 2.7 per 100 female deaths from all causes during that year.[55]

Consider it true that the great majority of cancers of the cervix are proceded by an *in situ* malignancy of at least five years' duration and that a cervical smear taken from each woman over thirty years every five years, would protect against invading cancer of the cervix. Theoretically 1.5 women in every 100 now living in this age group could be saved from death of cancer of the cervix at the cost of one such periodic examination every five years. If this was a part of a general periodic health examination, the cost of visualization of the cervix might be prorated as low as one dollar. With volume work and trained screening assistants a laboratory fee of $3.00 per case may be feasible. Under these ideal circumstances, it would cost roughly $267 to save one woman from death by cancer of the cervix. This, then, might be considered a lifetime insurance premium against death by cancer of the cervix. If experience reveals that annual examinations are necessary the lifetime premium is $1,335. These figures would not include the cost of the patient's time and other expense or the repeated examinations and hospitalizations resulting from the false "suspicious cells" findings. The latter have run as high as 18 per cent in some reports.[50] Physicians submitting cervical smears annually from entirely normal women over thirty years of age should expect 333 negative tests for every positive test.

If we can believe the frequency of one or two cases of cancer *in situ* of the cervix per 100 women reported from physicians' office practices,[13,24,25] then there should be no question about the economic advisability of protection by cytologic smear studies in this group of women. A lifetime insurance premium here would cost $200. It is impossible today to do more than cite widely varied figures on the frequency of carcinoma *in situ* of the cervix in different selected groups and speculate on their accuracy.

At the present rate of interest and investigation, we should have within the next ten years much more accurate information upon which to estimate the cost per life saved in specified selected groups of women through cytologic examinations. This same research is being carried out in all fields of periodic examinations for cancer. There is no question but that much good is being done in cancer detection centers. The question is how many lives are saved beyond those saved without the aid of detection centers and the cost of each life saved in this group.

Conclusions

1. Cytologic smears are used primarily for the purpose of detecting carcinoma *in situ* of the cervix before a clinically apparent neoplasm has developed.

2. Carcinoma *in situ* of the cervix can vary from a rapidly transient lesion to one unable to invade for many years.

3. Upon the frequency of the slow variety of carcinoma *in situ* of the cervix depends the practicality of cytologic diagnostic procedures in this area.

4. If the great majority of cancers of the cervix are preceded by the five-to ten-year type of carcinoma *in situ* and if it is possible to train sufficient and accurate technical personnel for the purpose, it is conceivable that a thirty-year or older woman could insure herself against a 1.5 per cent chance of death by cancer of the cervix for a lifetime premium of $267.00.

5. There now exists in private practice a necessity of an almost universal improvement in surgical technique in connection with the diagnosis of carcinoma *in situ* of the cervix.

6. A clarification of the histologic difference between reversible hyperplastic cellular changes in the cervix of pregnancy and a true carcinoma *in situ* is urgently needed.

7. The criteria for the use of cytologic and biopsy techniques for detection of uterine malignancies are now fairly clearly defined.

8. In my opinion, it is only a matter of time before the general economic level and the customs of the people will lead to a wide use of cytologic or biopsy diagnostic procedures for the detection of cervical malignancy. These will be performed primarily in conjunction with periodic examinations for cancer on apparently healthy women by the general practitioner.

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(Continued on Page 1006)

ACCIDENTAL DEATHS IN MINNESOTA IN 1950

A. B. ROSENFIELD, M.D., M.P.H., and A. J. CHESLEY, M.D.
Minneapolis, Minnesota

MORE children are killed by accidents than by any other cause. In 1950, 190 Minnesota children from one to fifteen years of age were killed by accidents. This total represented one-third of all the deaths in this age period (Fig. 1). Almost one-third of all the accidental deaths were motor vehicle fatalities. There were almost as many deaths from accidents as from malignant neoplasms, convulsions and diseases of the central nervous system, congenital malformations, pneumonia and influenza combined. These conditions caused a total of 197 deaths.

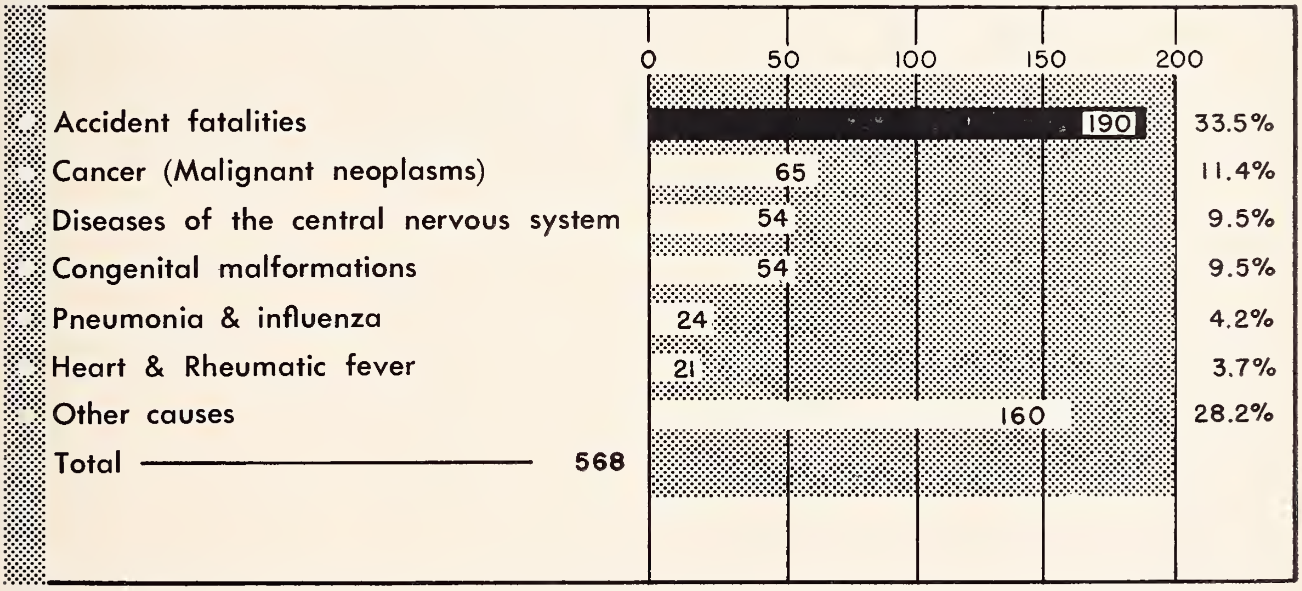

Fig. 1. Deaths from selected causes, ages one to fourteen years, in Minnesota residents, 1950.

In recent years the reduction in deaths from disease has been more than twice as great as the reduction in deaths from accidents. The effects of preventive medicine and public health and the advances in clinical medicine have been noteworthy in reducing deaths from infectious and communicable disease during childhood. A decrease of 65 per cent has occurred in these deaths during the past thirty-five years. Accidental deaths, however, have assumed a more prominent place because only a 30 per cent reduction in deaths from accidents has occurred during this same period.

Even during infancy, when the baby is entirely dependent upon an adult for his care, his health, and his safety, there were forty-four accidental deaths, in most cases due to someone's carelessness. It is true that this number is small in comparison with the total number of infant deaths (1,876) which are due chiefly to immaturity, congenital malformations, and birth injuries. It is important to note, however, that while there has been a 60 per cent decrease in infant deaths from all causes from 1915 to 1950, there has been only a 10 per cent decrease in deaths due to accidents during the same period. Mechanical suffocation in bed or cradle was reported in two-fifths of the accidental deaths in infants (Table IV.) While it is now generally accepted that deaths of infants ascribed to mechanical suffocation are, for the most part, actually the result of an acute respiratory infection, physicians and coroners continue to report these deaths as accidental. Burns were the second most frequent cause of accidental deaths in infants, with obstruction, suffocation or puncture by ingested objects in third place.

In the age group of one to five years, acci-

Dr. Rosenfield is Director, Division of Maternal and Child Health, Minnesota Department of Health.

Dr. Chesley is Secretary and Executive Officer of the Minnesota Department of Health.

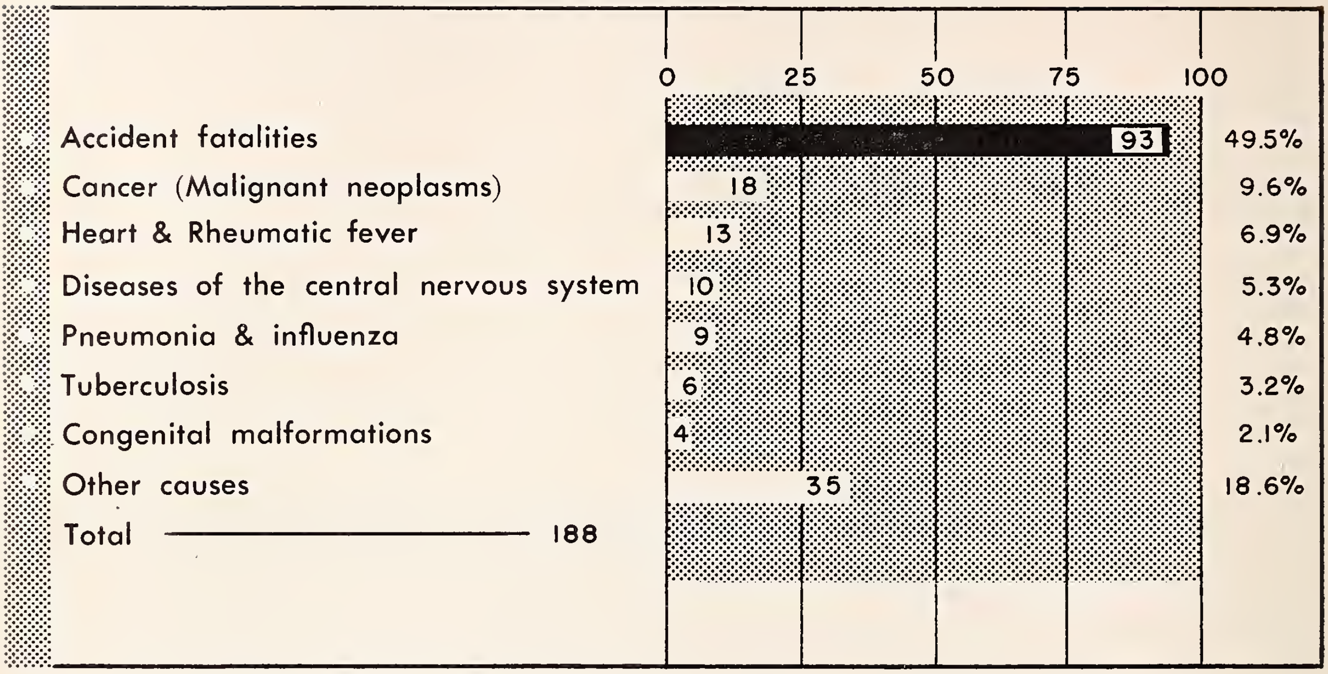

Fig. 2. Deaths from selected causes, ages fifteen to nineteen years, in Minnesota residents, 1950.

dental deaths constituted 28 per cent of all deaths; in the five to ten year age group, 36.6 per cent and in the age group of ten to fifteen years, accidents were responsible for 44 per cent of the deaths.

Among young people between the ages of fifteen and nineteen, almost one-half of all the deaths (49.5 per cent) were due to accidents (Fig. 2). More than half of these deaths were caused by motor vehicle accidents. These constituted 27 per cent of all the deaths. In contrast, deaths from malignant neoplasms, convulsions and diseases of the central nervous system, rheumatic fever, heart disease, pneumonia, influenza, tuberculosis, and congenital malformations constituted only 32 per cent of the deaths in this age period.

In young adulthood, between the ages of twenty and thirty-four years, accidental deaths continued in first place and constituted 36 per cent of the deaths (Fig. 3). More than half of these deaths were motor vehicle fatalities, which constituted 57 per cent of all the accidental deaths. Accidental deaths in this age group exceeded the combined deaths from malignant neoplasms, heart disease, tuberculosis, nephritis and nephrosis, diabetes mellitus, and maternal causes.

In the age group of thirty-five to sixty-four years, heart disease, cancer, and intracranial vascular lesions, the degenerative diseases most commonly associated with old age, were the three leading causes of death, with accidental fatalities in fourth place (Table I). Accidental deaths exceeded the combined total of all deaths from tuberculosis, pneumonia and influenza, and diabetes.

In the age group of sixty-five years and over, general arteriosclerosis, another of the degenerative diseases of old age, took fourth place and accidental deaths dropped to fifth place. But accidental deaths exceeded the number of deaths from pneumonia and influenza (Table II).

These figures show that accidents were not only the greatest health hazard for children but also were the leading cause of death up to age thirty-five, beyond which the degenerative diseases took the lead. The importance of accidents as a cause of death is emphasized even more when the ten leading causes of death are considered (Fig. 4). For all ages and all causes in 1950, accidental deaths were in fourth place, exceeded only by the leading degenerative diseases (heart disease, cancer, and intracranial vascular lesions). Motor vehicle accidents were responsible for one-third of all accidental fatalities (33.4 per cent). Accidental deaths in Minnesota residents (1,747) exceeded the total caused by pneumonia and influenza (897) and general arteriosclerosis (822).

Dickenson and Welker of the Bureau of Medical Economic Research of the American Medical Association, in a bulletin entitled "What is the Leading Cause of Death?" (1948), have proposed two new measures of the loss to society re-

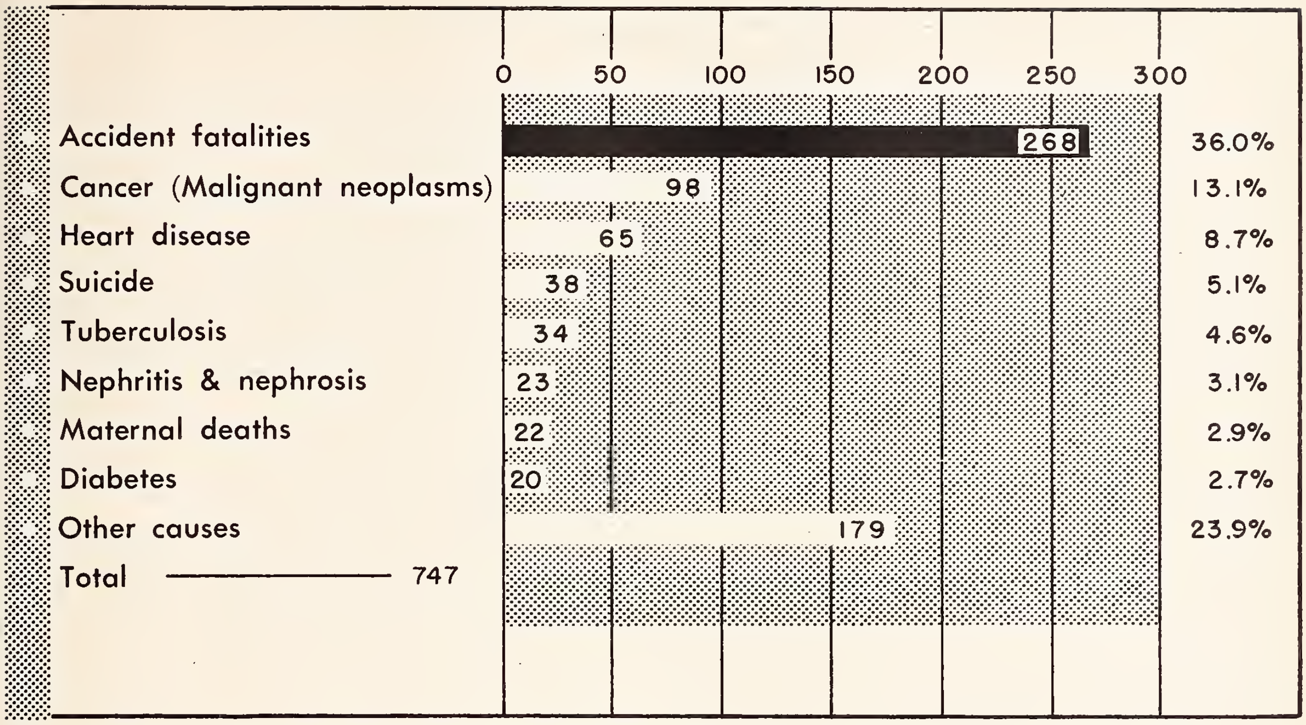

Fig. 3. Deaths from selected causes, ages twenty to thirty-four years, in Minnesota residents, 1950.

TABLE I. DEATHS FROM SELECTED CAUSES, AGES 35-64 YEARS, MINNESOTA RESIDENTS, 1950

Total (All Causes)	Number	Per Cent
	7,617	100.0
1. Heart disease	2,894	38.0
2. Malignant neoplasms	1,686	22.1
3. Intracranial vascular lesions	706	9.3
4. Accident fatalities	503	6.6
5. Suicide	234	3.1
6. Tuberculosis	171	2.2
7. Pneumonia-influenza	123	1.6
8. Diabetes	119	1.6
9. Nephritis and nephrosis	108	1.4
All other causes	1,073	14.1

TABLE II. DEATHS FROM SELECTED CAUSES, AGES 65 YEARS AND OVER, MINNESOTA RESIDENTS, 1950

Total (All Causes)	Number	Per Cent
	16,901	100.0
1. Heart disease	7,214	42.7
2. Intracranial vascular lesions	2,750	16.3
3. Malignant neoplasms	2,501	14.8
4. General arteriosclerosis	796	4.7
5. Accident fatalities	648	3.8
6. Pneumonia-influenza	565	3.3
7. Diabetes mellitus	381	2.3
8. Hypertension without mention of heart disease	222	1.3
9. Nephritis and nephrosis	124	0.7
All other causes	1,700	10.1

sulting from the leading causes of death, (1) "live years lost" and (2) "working years lost." They have defined "working years lost" as the average number of years to be lived between the twentieth and sixty-fifth birthdays, because this period is the earning period of life according to the usual working habits of persons in this country. From a study of the leading causes of death in the United States in 1945, they found that, while accidents were the fourth leading cause of death, they were the leading cause of working years lost, responsible for 12.6 per cent of all lost working years. Heart disease was the leading cause in number of deaths, but was in second place (12.2 per cent) for lost working years. Pneumonia, in sixth place in the United States as a cause of death, was the third leading cause for lost working years (8 per cent); cancer, in second place as a cause of death, was in fourth place in causing lost working years (7.5 per cent); intracranial vascular lesions, in third place as a cause of death, dropped to sixth place as a cause of lost working years (3 per cent).

Accidental Death Summary

Since 1938 there has been an average of 1,879 fatal accidents every year in Minnesota. Accidental death rates have declined from 69 per 100,000 population in 1938 (1,895 deaths) to 57.4 in 1950 (1,712 deaths), a decrease of 17 per cent (Fig. 5). There were two peaks, a rise in the rate to 75.8 per 100,000 population in 1941 and to 72.0 in 1945, at the beginning and at the end of the war years. The trend in motor vehicle

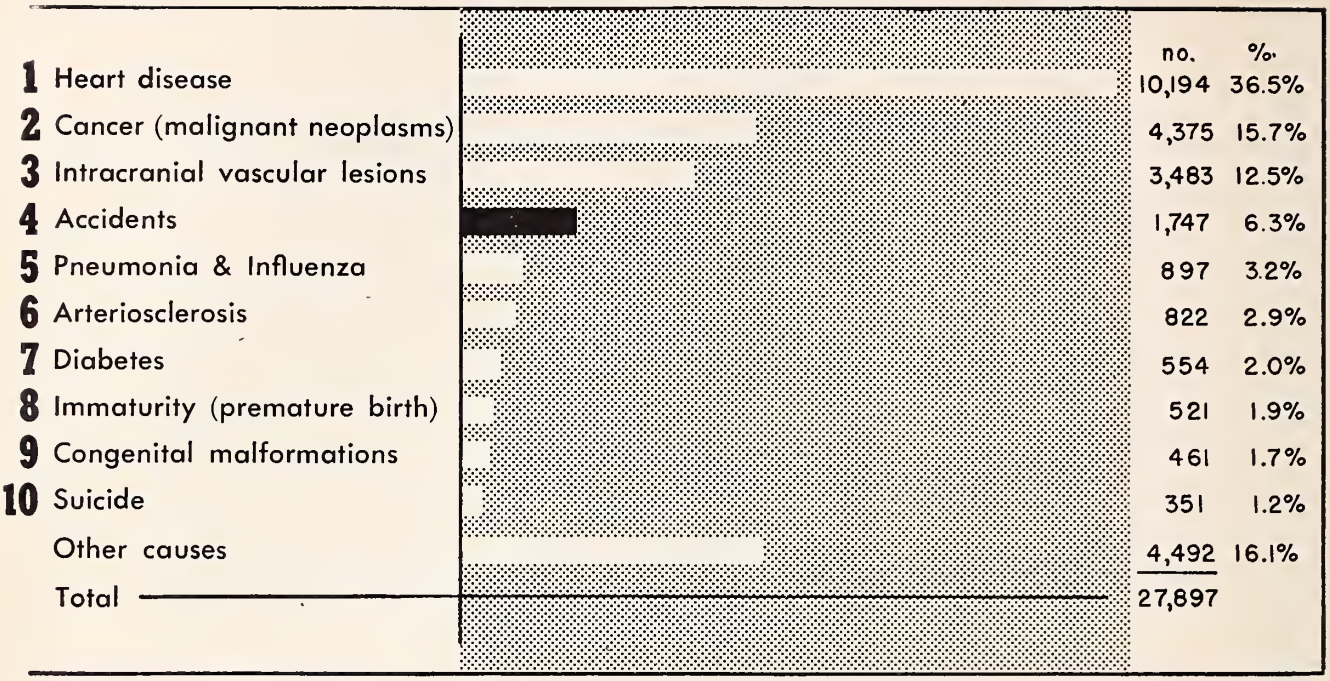

Fig. 4. Ten leading causes of death in Minnesota residents, 1950.

TABLE III. ACCIDENTAL DEATH SUMMARY, BY OCCURRENCE, MINNESOTA, 1950

Type of Accident	All Ages	Sex		0-4 Years	5-14 Years	15-24 Years	25-44 Years	45-64 Years	65 and Over
		M.	F.						
Grand Total	1,712	1,165	547	132	102	195	299	340	644
Home	660	315	345	90	25	14	43	74	414
Motor vehicle	559	431	128	27	31	118	133	140	110
Public	349	277	72	15	40	48	83	72	91
Occupational total	144	142	2	0	6	15	40	54	29

deaths during the past decade is of interest. There was a marked decrease during the war years (1941-1945) with a low of 11.8 per 100,000 population in 1943, due to the limitation in the use of motor vehicles. The death toll in the post-war years has not reached the high level of the prewar years despite the fact that highway travel has reached an all-time high in recent years. Coincident with the decrease in motor vehicle fatalities there was a rise in home, public, and occupational accidents, the latter rise doubtless being due to the tremendous increase in employment.*

A total of 1,712 accidental deaths occurred in Minnesota in 1950, a decrease of 10 per cent from the 1949 total of 1,904 deaths (Table III). This apparent decrease, however, was not actually due to a decrease in accidental deaths but to a change in statistical coding, which took place in 1950.

Twice as many accidental deaths occurred in males as in females. Two out of five accidental deaths were home accidents (38.6 per cent). Only in this type of accident were there more female than male accidental deaths (345 female; 315 male). Out of a total of 660 home accidental deaths, ninety were in persons under the age of five years and 414 in persons sixty-five and over. One out of every three were motor vehicle deaths (33.3 per cent) and one out of five were public non-motor vehicle deaths (19.7 per cent). One out of twelve were occupational accidents (8.4 per cent) and one-half of these were accidental deaths occurring in agriculture (Fig. 6).

By specific age groups (Table III), in children under the age of five years, 68 per cent (ninety deaths) were home accidents, 21 per cent (twenty-seven deaths) were motor vehicle fatalities, and 11 per cent (fifteen deaths) were other public accidents. In school children between the ages of five and fourteen years, home fatalities dropped to

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*Provisional figures to date for 1951, however, indicate that if motor vehicle deaths continue at the current trend the highway accident death toll may exceed that of any previous year.

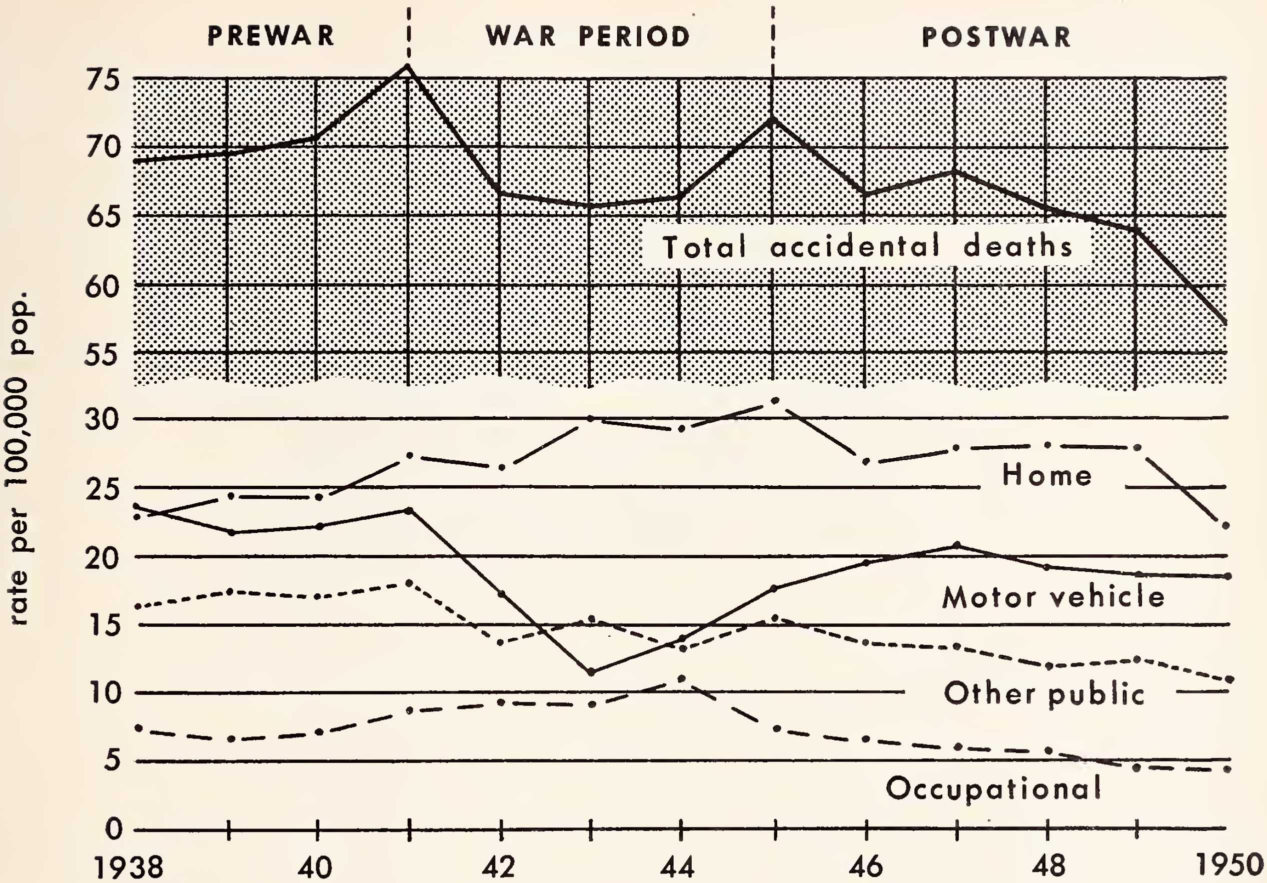

Fig. 5. Accident mortality rates by major classification, by occurrence, in Minnesota, 1938-1950.

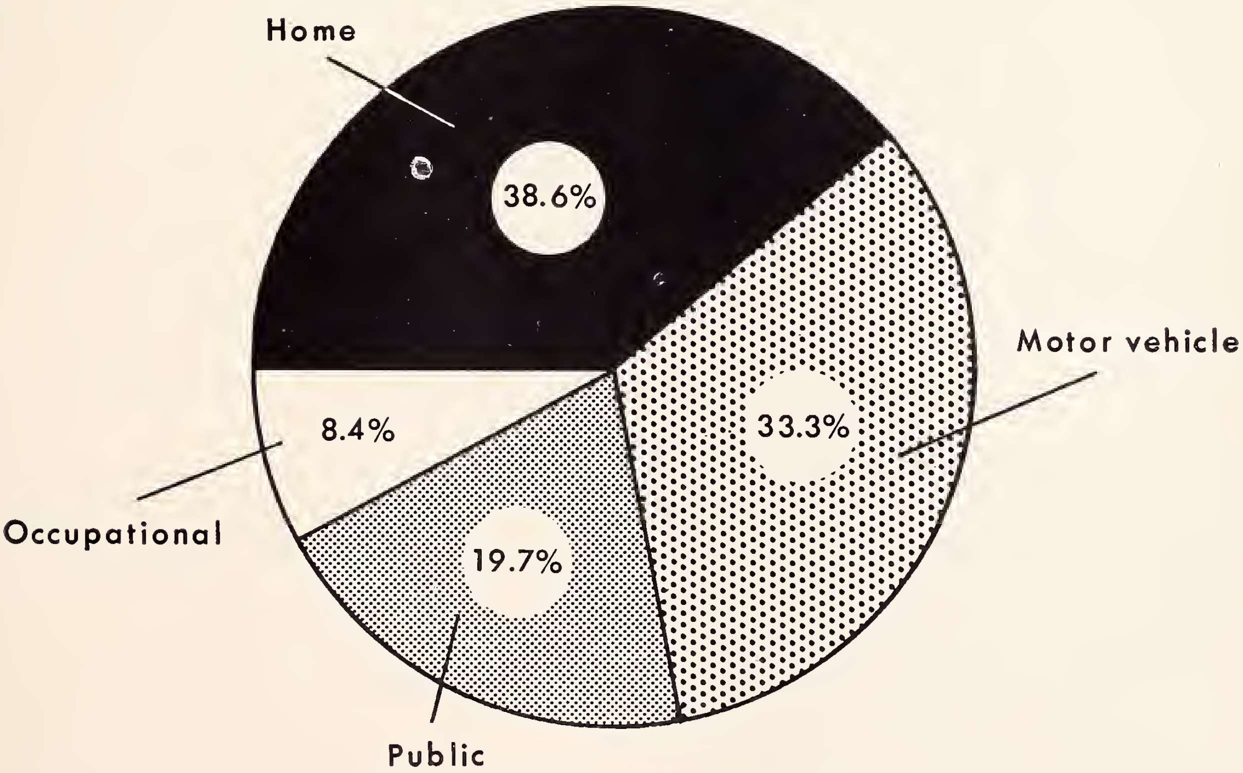

Fig. 6. Accidental deaths by major classification by percentage, by occurrence, in Minnesota, 1950.

TABLE IV. PRINCIPAL CAUSES OF HOME ACCIDENT FATALITIES—
NUMBER AND PER CENT DISTRIBUTION FOR SELECTED AGE GROUPS, BY OCCURRENCE, MINNESOTA, 1950

Type of Accident	All Ages		Under One Year		1-4 Years		5-14 Years		15-24 Years		25-44 Years		45-64 Years		65 & Over	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Total	660	100.0	44	100.0	56	100.0	25	100.0	14	100.0	43	100.0	74	100.0	414	100.0
Falls	426	65.0	2	4.6	2	3.6	3	12.0	—	—	9	21.0	39	53.0	371	89.6
Burns	94	13.7	8	18.0	20	35.7	11	44.0	2	14.3	16	37.2	14	18.9	23	5.6
Mechanical suffocation	19	2.9	18	40.9	1	1.8	—	—	—	—	—	—	—	—	—	—
Poisonings by gases	17	2.6	—	—	—	—	—	—	1	7.1	5	11.6	6	8.0	5	1.2
Firearms	16	2.4	2	4.6	—	—	1	4.0	7	50.0	3	7.0	3	4.0	1	0.2
Poisonings (gas excepted)	15	2.3	2	4.6	4	7.1	—	—	—	—	5	11.6	3	4.0	1	0.2
Drowning	14	2.1	1	2.3	12	21.4	1	4.0	—	—	—	—	—	—	—	—
Suffocation by foreign objects	11	1.7	4	9.1	3	5.4	1	4.0	—	—	1	2.3	1	1.3	1	0.2
Injury by farm machinery	8	1.2	—	—	5	8.9	2	8.0	—	—	1	2.3	—	—	—	—
Other	40	6.1	7	15.9	9	16.1	6	24.0	4	28.6	3	7.0	8	10.8	12	2.9

TABLE V. MOTOR VEHICLE DEATHS, BY OCCURRENCE, MINNESOTA, 1950

Cause	All Ages	Per Cent of Total	0-4 Years	5-14 Years	15-24 Years	25-44 Years	45-64 Years	65 & Over
Total	559	100.0	27	31	118	133	140	110
Collision with other motor vehicle	179	32.0	3	3	42	45	62	24
Injury to pedestrians	154	27.6	18	15	13	11	35	62
Non-collision	134	24.0	4	3	40	51	24	12
Collision with railroad train	46	8.2	2	3	11	13	10	7
Collision with fixed object	31	5.5	—	—	10	11	8	2
Collision with bicycle	10	1.8	—	7	1	—	1	1
Other	5	0.9	—	—	1	2	—	2

25 per cent (twenty-five deaths) while motor vehicle deaths increased to 31 per cent (thirty-two deaths) and public accidents to 38 per cent (thirty-nine deaths). In young people between fifteen and twenty-four years, motor vehicle fatalities doubled to 61 per cent (119 deaths) while home accidents decreased to 7 per cent (fourteen deaths). Between the ages of twenty-five and forty-four years, motor vehicle fatalities were responsible for 43 per cent of the accidental deaths (135 deaths) and home fatalities accounted for 18 per cent (forty-three deaths). In the age group sixty-five and over, home accidents accounted for 414 deaths or 64 per cent of all accidental deaths, and motor vehicle fatalities totaled 115 deaths or 18 per cent.

Home Accidents

Home accidents are of special interest, not only because they constituted two-fifths of all accidental deaths, but because one-half of all accidental deaths in children under the age of fifteen were home accidents. The principal cause of home accidents was falls, which were responsible for more than two-thirds of all home accidental deaths (sixty-five per cent) (Table IV). Fatal falls occurred in older persons, 9.5 per cent of all such deaths occurring in persons between the ages of forty-five and sixty-four, and eighty-seven per cent in persons who were sixty-five years of age and older. The second cause of accidental deaths was burns, responsible for fourteen per cent of the deaths from home accidents. Almost one-fourth of the deaths from burns occurred in children under age five and another one-fourth in persons sixty-five years of age and older. More than one-third of all accidental deaths in children between the ages of one and five years were due to burns (36 per cent). Two-fifths of the poisonings from solids or liquids occurred in children under age five, while poisonings from gases and vapors occurred in adults. Almost one-half of the home deaths from firearms occurred in persons from fifteen to twenty-four years of age. Almost all of the home drownings occurred in children under the age of five years (93 per cent). It should be noted that home drownings represent only a small portion of the total number of drownings in Minnesota. Most of them are tabulated under public accidents (Table VII), where additional deaths from firearms will be found.

Motor Vehicle Accidents

In 1950 there were 559 fatal motor vehicle accidents, the same as in 1949, this number comprising 33 per cent of all fatal accidents. Collision with another motor vehicle caused 32 per cent of the deaths; injury to pedestrians caused 28 per cent of the fatalities; and non-collision accidents were responsible for 24 per cent. Five per cent (twenty-seven deaths) of motor vehicle deaths occurred in children under age five, two thirds of them as pedestrian injuries; another 5 per cent (thirty-one deaths) between the ages of five and fourteen years, one-half being pedestrian injuries; 21 per cent (118 deaths) of motor vehicle deaths occurred between fifteen and twenty-four years; 24 per cent (133 deaths) between twenty-five and forty-four years; 25 per cent (140 deaths) between forty-five and sixty-four years, and twenty per cent (110 deaths) at age sixty-five and over. In the oldest age group, as in children, pedestrian injuries constituted more than one-half of the motor vehicle deaths.

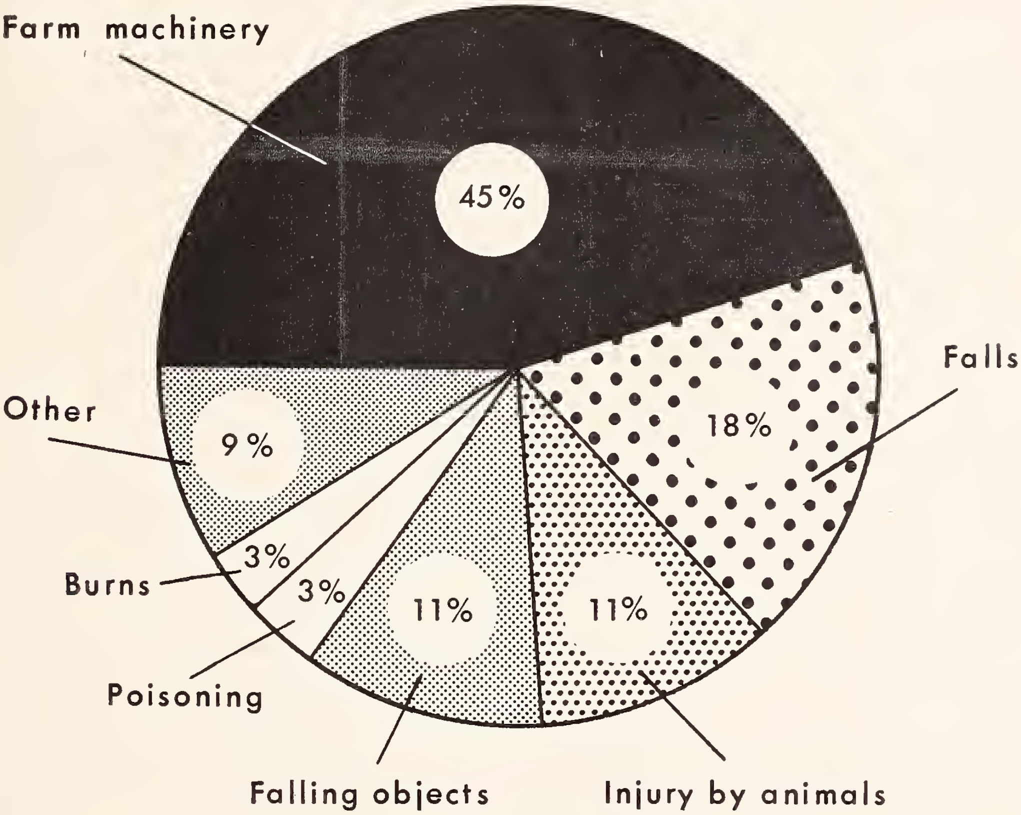

Fig. 7. Farm fatalities by specific cause and percentage, by occurrence, in Minnesota, 1950

TABLE VI. OCCUPATIONAL ACCIDENTAL DEATHS, BY OCCURRENCE, MINNESOTA, 1950

Type of Accident	All Ages	Per Cent of Total	0-4 Years	5-14 Years	15-24 Years	25-44 Years	45-64 Years	65 & Over
Total	144	100.0	—	6	15	40	54	29
Agriculture	73	50.7	—	6	9	13	26	19
Manufacturing	11	7.6	—	—	3	4	4	—
Transportation	10	6.9	—	—	—	2	4	4
Mining, quarrying, oil and gas wells	9	6.2	—	—	1	4	3	1
Public utilities	8	5.6	—	—	1	2	3	2
Construction	7	4.9	—	—	1	3	3	—
Other	26	18.1	—	—	—	12	11	3

Occupational Accidents

There were 144 occupational deaths in 1950 representing 8.4 per cent of all accidental fatalities in Minnesota (Table VI). Farm fatalities totaled seventy-three, more than half of all occupational deaths (50.7 per cent). Farm machinery was the leading farm hazard, accounting for 45 per cent of the farm deaths. Falls were responsible for 18 per cent; injury by animals and falling objects accounted for 11 per cent each; burns and poisoning accounted for 3 per cent each (Fig. 7). Only six deaths from occupational causes occurred between the ages of five and fourteen years. These were all farm accidents, and they constituted 8 per cent of all farm accident deaths.

TABLE VII. PUBLIC NON-MOTOR VEHICLE DEATHS, BY OCCURRENCE, MINNESOTA, 1950

Cause	All Ages	Per Cent of Total	0-4 Years	5-14 Years	15-24 Years	25-44 Years	45-64 Years	65 & Over
Total	338	100.0	15	39	47	81	70	86
Falls	81	24.0	—	—	3	6	17	55
Drowning	80	23.7	11	24	15	9	13	8
Water transportation	52	15.4	—	2	11	23	14	2
Air transportation	36	10.6	—	4	4	23	4	1
Railroad, not with motor vehicle	26	7.7	1	1	—	5	8	11
Firearms	14	4.1	—	3	6	—	4	1
Other	49	14.5	3	5	8	15	10	8

It is of interest to note the small number of accidental deaths that occurred in mining, quarrying, construction, public utilities, and manufacturing. In spite of the hazardous nature of these occupations, they caused less than one-fourth of all occupational deaths. This record was undoubtedly due to the fact that industry has recognized the importance of accident prevention and has developed safety devices and safety education "on the job." The next step should be an extension of safety education into the homes of workers.

Public Accidents

Public accidents (non-motor vehicle) took 338 lives during 1950 (Table VII). The leading causes were falls, 24 per cent; drowning, 24 per cent; water transportation, 15 per cent; air transportation, 11 per cent; railroad transportation, 8 per cent; and firearms, 4 per cent. Of the fatalities from falls, more than two-thirds occurred in persons sixty-five years of age and older (68 per cent). Almost half of the public drowning occurred in children under fifteen years of age (44 per cent) and another one-fifth between fifteen and twenty-four years of age (19 per cent).

Summary

Accidents are the greatest hazard in the lives of children. Although accidents are responsible for only 3 per cent of the deaths under the age of one year, they are responsible for one-third of all the deaths between the ages of one and fifteen years, and one-half of them are home fatalities. Accidents are the cause of one-half of the deaths between the ages of fifteen and nineteen years. They continue as the leading cause of death up to age thirty-five, beyond which the degenerative diseases take the lead. Among the ten leading causes of death, accidents continue to hold fourth place in number of deaths. But, quoting Dickenson and Welker, "We see that fatal accidents outrank every other cause of death as a destroyer of the working years of life, the years which represent the productive and military strength of this country."

Statistics on accident fatalities tell only part of the story. Many more children and adults are handicapped and disabled by non-fatal accidents, which are not reportable in Minnesota. Most accidental deaths are preventable. We need a greater appreciation of the size of the problem and more knowledge on how and why accidents occur. The medical profession, health departments, schools, welfare agencies, and safety groups are all interested in child and adult health, safety and welfare. Accident prevention is a tremendous job that requires the active co-operation of all interested groups for effective action.

Obviously, an abnormal finding in the initial x-ray film cannot by itself constitute a clinical diagnosis (of tuberculosis). Nevertheless, it does serve to focus attention on those persons in need of further study. At the same time, such a photofluorographic finding imposes an obligation on the physician and the official health agency—an obligation to carry out full diagnostic study promptly in order to determine the clinical significance of the suspected abnormality. For, the abnormal findings discernible in an initial screening film can range all the way from minor deviations requiring no follow-up or care to some very serious conditions which demand immediate medical attention.—DAVID REISNER, M.D. and ARTHUR RIKLI, M.D., *Public Health Reports,* April 6, 1951.

THE USE OF WANGENSTEEN SUCTION IN SURGERY

ALTON OCHSNER, M.D.

William Henderson Professor of Surgery,
School of Medicine, Tulane University
New Orleans, Louisiana

PROBABLY nothing has done more to facilitate the recovery of individuals subjected to abdominal procedures than the routine use of gastrointestinal suction in the immediate postoperative period. With elaboration of the idea of gastric suction by Wangensteen, a more rational concept of disturbed physiology following trauma to the intraabdominal viscera was possible. As a result of irritation of the peritoneum regardless of the cause, there is a functional inactivity of the gastrointestinal tract, which persists for varying periods of time according to the degree of trauma. In infections of the peritoneum, trauma to the peritoneum is prolonged and for this reason the associated adynamic ileus is of much more serious importance and significance than that which follows an operative procedure. Ever since introduction of gastric suction by Wangensteen, we have employed the Wangensteen tube routinely in all patients subjected to laparotomy except the simplest of procedures, such as an appendectomy. In this way we have been able to do away almost completely with postoperative nausea and vomiting, abdominal distention, and gastric dilatation. As a result of trauma and its associated ileus, the secretions which are normally poured into the upper part of the gastrointestinal tract, that is from the stomach, the duodenum, the liver and pancreas, and which normally are transported by peristalsis into the lower part of the intestinal tract from whence they are absorbed, remain in the upper part of the digestive tube and, if not removed, cause nausea and vomiting. By means of an indwelling catheter and suction, these secretions are removed and the stomach and upper intestinal tract are kept empty. In this way a persistent adynamic ileus is frequently prevented and resumption of normal gastrointestinal activity occurs early. The length of time gastric suction must be maintained varies according to the degree of trauma, but generally does not exceed twenty-four to seventy-two hours. By careful auscultation of the abdomen, one can determine the return of peristalsis, and as soon as peristaltic sounds become active, the tube can be removed safely.

Although there are some indications for the use of a double tube, these indications in our hands have become less frequent as time passes. In any case, however, in which decompression of the lower intestinal tract is desired and obtained by means of the double tube, it is imperative that gastric suction be maintained likewise, because otherwise accumulation of secretions in the upper gastrointestinal tract will occur and will be accompanied by nausea and vomiting. During the time that an indwelling gastric catheter is maintained and suction is applied, nothing is allowed by mouth, because otherwise large amounts of electrolytes will be washed out of the stomach by the gastric lavage. Obviously, the fluids and electrolytes removed by gastric suction must be replaced parenterally. If for any reason, there is not prompt resumption of gastrointestinal activity and prolonged gastric drainage is necessary, it is essential that potassium deficiency should be prevented by the administration of potassium intravenously. This is usually encountered only in those cases in which there is severe inflammatory disease producing prolonged irritation of the peritoneum and splanchnics.

From the Departments of Surgery, School of Medicine, Tulane University, and the Ochsner Clinic, New Orleans, Louisiana.

One check of the reliability of the 70 mm. film for the detection of tuberculosis by having two independent readings showed that the use of a second reader increased the number of suspected cases to be called back for verification by 46 per cent. The same study also revealed that those not reporting for examination were unrepresentative of the total population with respect to age and economic status. Based upon a sample who subsequently reported for examination, this group had a somewhat higher prevalence rate of tuberculosis.—Harold F. Dorn, Ph.D., *American Journal of Public Health*, March, 1951.

PROCAINE AMIDE IN THE TREATMENT OF VENTRICULAR TACHYCARDIA

ALFRED DÖSCHERHOLMEN, M.D.
Minneapolis, Minnesota

PAROXYSMAL ventricular tachycardia may occur in persons without demonstrable organic heart disease.[2,8,11] Often it is encountered in arteriosclerotic and hypertensive heart disease and after overdigitalization.[13] A special type may be induced by emotion or exertion.[14] Most frequently the underlying cause is a recent myocardial infarction. It is justifiable to suspect every case of ventricular tachycardia to be caused by infarction until proven otherwise. The earliest sign of hyperirritability of the heart muscle is single or multifocal extrasystoles. Later on, series of ventricular extrasystoles ensue with normal rhythm between. The next step in the development is more prolonged attacks of ventricular tachycardia, lasting for days or weeks.

Experimentally, ventricular tachycardia may be induced by ligation of a coronary artery, by the administration of barium chloride, and by a combined stimulation of the vagus and accelerator nerves.[12] But the most famous experimentally produced ventricular tachycardia is the one induced by cyclopropane-epinephrine and chloroform-epinephrine anesthesia.[1,4,7] Benzol has also the ability to increase ventricular irritability. Mechanical irritation of the heart, as in heart catheterization, may lead to ventricular premature beats and ventricular tachycardia. Electrical shock may bring about ventricular fibrillation.[5]

The occurrence of cardiac arrhythmias has been reported in myocardial infarction in 9 to 27 per cent of the cases, with an average of 18 per cent, and ventricular tachycardia may develop in approximately 1 per cent of the cases.[14] It is always a serious condition, indicating a severe degree of irritability of the heart muscle and frequently terminating fatally in ventricular fibrillation. In Williams and Ellis' series consisting of thirty-six patients, eight died during the attack and thirteen more shortly after attacks. If the attack lasts over a long period of time, danger of heart failure is always present, because of the insufficient filling of the heart during diastole.

For many years procaine has been known for its ability to prevent and control cardiac arrhythmias in anesthetized patients.[6] Its usefulness, however, is limited because of its rapid destruction and elimination from the body as procaine esterase and by its hypotensive action. In unanesthetized patients, it acts as a central nervous stimulant with tendency to convulsions. Marks et al[9] have studied the effect of various chemical compounds belonging to the diethylaminoethanol-group on ventricular tachycardias experimentally produced in dogs by cyclopropane-epinephrine anesthesia. The most promising one was procaine amide (Pronestyl Squibb). It may be given orally as well as intravenously, is rapidly and completely absorbed from the intestines and is not hydrolyzed by the plasma enzymes. The plasma levels decline 10 to 15 per cent per hour, and about 60 per cent is excreted unchanged in urine. The toxicity of procaine amide seems to be small. Doses of from 3 to 6 grams per day have been given orally from two days to three months without toxic effects. It has been found to cause a drop in blood pressure in many cases when administered intravenously. This route of administration should therefore be used with great caution, and the drug should be injected very slowly.

Because of the good results that have been reported in the literature lately, it was decided to give procaine amide a trial on a patient with ventricular tachycardia who came under our treatment recently:

The patient, a white man, sixty-seven years old, was treated in Asbury Hospital from February 2 to March 11, 1951, for myocardial infarction.

A known hypertensive for years, he walked one mile in 20 below zero weather on February 1 in the afternoon without having any complaints at that time. In the evening, however, he developed pain across the chest, radiating to the left shoulder and left arm, to the neck and to the left side of the lower jaw, where the pain was felt like a toothache. He broke out into a sweat. Pain grew worse and he was unable to find rest in any position. A doctor was called. At that time his color was good, skin warm and dry, temperature 98.6, pulse 72 and regular, blood pressure 200/100. He was given a sedative after which he became nauseated and vomited and felt somewhat better.

The next day he had a chill, and his only complaint was a dull ache over the left lateral chest. Early in the

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Case report through courtesy of J. J. Kaplan, M.D.

morning of February 3 he developed intermittent cramping pain in the abdomen which lasted through the night. He was again seen by his doctor who found his temperature 100.2, pulse 84 and regular, blood pressure 140/90, color good. He had crepitant râles over both lung bases. Heart sounds were of good quality with a systolic murmur heard over the mitral area; normal rhythm. No edema was present. There was an umbilical hernia and bilateral inguinal hernias.

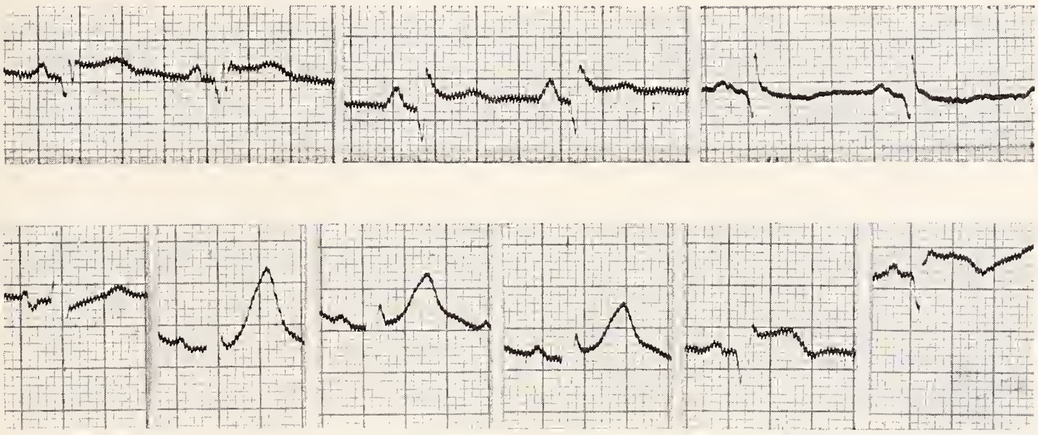

Fig. 1. Electrocardiogram taken the day of admission, showing evidence of anterolateral infarction. First row, limb leads I, II, and III. Second row, leads V 1 to V 6.

On the day of his arrival at the hospital he complained of severe chest pain and was given 100 mg. of Demerol. He obtained relief and the pain did not recur. Examination now revealed a blood pressure of 120/60, but otherwise no change from the description above. His sedimentation rate was 60 mm. in one hour, white blood count 25,950 with 91 per cent polymorphonuclears and 9 per cent lymphocytes. Urine was normal. Electrocardiogram was consistent with an acute anterolateral infarction (Fig. 1). X-ray of the chest showed a marked left ventricular cardiac enlargement and slight pulmonary congestion.

He was given the usual treatment with bed rest, anticoagulants, antispasmodics and in addition penicillin. On February 5 a precordial friction rub was discovered and it was present for about ten days. On February 6 the friction rub was heard over the entire precordium and the patient had a pectoriloquy over the left lung posteriorly, thought to be caused by a pericardial effusion with compression of the lower left lung lobe. Another roentgenogram showed some haziness over the right lower lung field, suggestive of possible infarction.

He raised some mucopurulent sputum the first two to three days in the hospital, but no bloody sputum was observed. His white blood count fell to 20,000 and the sedimentation rate increased to 73 mm. on February 5. Five days later the white blood count was 16,200 and sedimentation rate 108 mm. His temperature was elevated to 100.4 for the first nine days he spent in the hospital; later it was normal. His blood pressure fell to 100/70 the second day after admission and has since been fluctuating between 92 and 120 systolic and 50 and 90 diastolic. His pulse ran between 70 and 90 for the first four days.

On the morning of February 8 a pulse rate of 40 to 44 was discovered. His heart rate, however, was between 80 and 90. His blood pressure was 114/70. It was evident that every second beat was an extrasystole, but the premature beat occurred so early in the diastole as to provoke no pulse wave. An electrocardiogram confirmed this by showing electrical bigemini throughout (Fig. 2). He was given quinidine sulfate gr. III q.i.d. from now on. He was also given Digitoxin 0.2 mg. for three doses only, this same day.

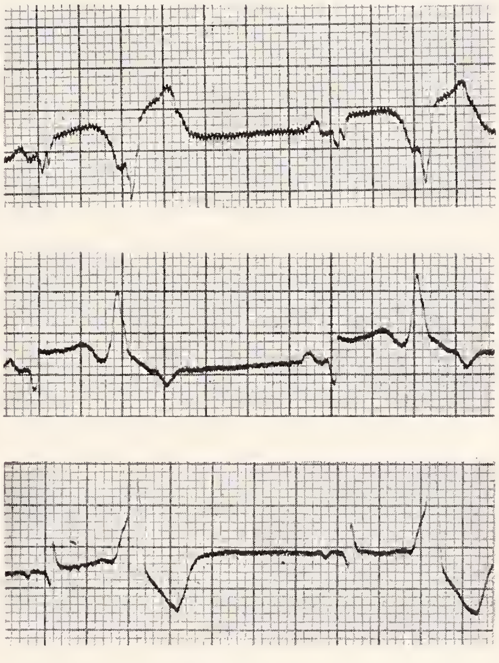

Fig. 2. Electrocardiogram five days after admission, showing electrical bigemini. Limb leads I, II, and III.

For the next two days, he showed intermittent bigemini. At 7 a.m. on February 11, it was difficult to obtain his pulse and the heart rate was about 200 per minute. Blood pressure was 88/68. An electrocardiogram showed ventricular tachycardia. Oxygen was started. At 9:30 a.m. while he still had ventricular tachycardia Pronestyl hydrochloride was given intravenously slowly. The injection was stopped after 500 mg. had been injected, and at the same time a change to sinus rhythm had occurred. His blood pressure was between 80 and 90 systolic while the injection was given, but increased to 106 systolic at the moment a sinus rhythm was restored. The pulse was practically imperceptible while the tachycardia lasted but became strong, regular and about 72 after reversion to sinus rhythm. He was given orally continuation doses of Pronestyl hydrochloride 500 mg. at 9:45 a.m. and 250 mg. at 2:30 p.m., 6:30 p.m. and 10 p.m. At 1:10 p.m. the special nurse again noted bigemini. Another electrocardiogram confirmed this. At 9:30 p.m. ventricular tachycardia again was present. Pronestyl hydrochloride was given intravenously for the second time, and after injection of 500 mg. sinus rhythm was restored. An electrocardiogram was taken continuously during the injection and showed the sudden change in rhythm (Fig. 3). He was given a larger maintenance dose consisting of 500 mg. Pronestyl hydrochloride orally every four hours for three days. The dose was then reduced to 250 mg. every four hours for three days and after that 250 mg. four times daily for five days.

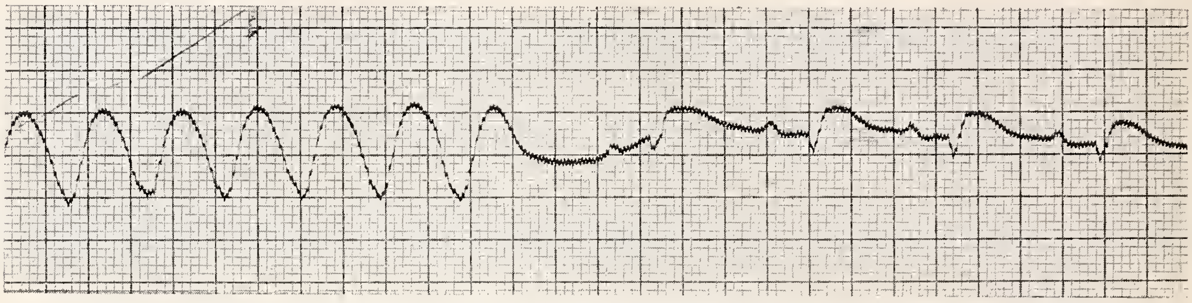

Fig. 3. Electrocardiogram eight days after admission showing reversion of ventricular tachycardia to sinus rhythm as procaine amide was injected intravenously. Limb lead II.

Medication was stopped on February 22. He received no more quinidine after he developed ventricular tachycardia. No more disturbances of the heart rhythm could be detected by us, the pulse rate being between 60 and 80 and regular. He had some urinary difficulty and had to have an indwelling catheter for five days. He developed urinary infection and was treated with sulfadiazine, but his recovery was otherwise completely uneventful, and he left the hospital steadily improving, on March 11.

There are few reports in the literature so far about procaine amide treatment of patients with cardiac arrhythmias. L. C. Mark et al. were able to suppress premature ventricular beats in patients for varying lengths of time by oral or intravenous medication. They were able to terminate prolonged attacks of ventricular tachycardia in three of four patients. Two of these had previously received quinidine to toxicity without effect. J. M. Kinsman et al. succeeded in reverting the rhythm to normal in two patients with paroxysmal ventricular tachycardia promptly after administering 400 and 550 mg. procaine, respectively. The case we present, as far as we know, is the sixth case of ventricular tachycardia that has been successfully treated with procaine amide. Our patient has also been treated with quinidine, which in smaller doses was unable to prevent the occurrence of the tachycardia. We did not try larger doses of quinidine and are therefore unable to judge whether this therapy would have succeeded or not. J. M. Kinsman et al. had also good experience in the treatment of ten of eleven patients with premature ventricular contractions by means of intravenous administration of procaine amide. The drug does not seem to have the same over-all success in the treatment of disturbances of auricular rhythm. Kinsman found no benefit in auricular flutter and fibrillation and auricular tachycardia. Of four patients with auricular premature beats, however, the abnormal rhythm was abolished in three cases. The same author noted the occurrence of transitory bundle branch block after procaine amide administration, which indicates a depressant action upon the specific conduction tissue in the heart, while the above-mentioned effect upon ventricular premature beats and ventricular tachycardia is due to a depression of the irritability of the contractile tissue of the heart.

As soon as this patient showed bigemini, we knew that hyperirritability was present and that he could be in danger. Quinidine was given to lessen this danger. We are fully aware of the ability of digitalis to increase the irritability of the heart muscle especially when it is given in toxic doses. On the other hand, we have been able to demonstrate repeatedly disappearance of arrhythmias in patients with enlarged heart and heart failure when given digitalis. In Williams and

Ellis' thirty-six cases of ventricular tachycardia, seventeen had received digitalis medication, and eight showed signs of digitalis toxicity. In our case, it was used in only half digitalization dose. We are unable to tell what role digitoxin played in the development of the ventricular tachycardia in this case, but we agree that it should not be given unless strong indications exist for its use. We did not try other drugs which have been used in this arrhythmia. It is our opinion that the recurrence of bigemini and later ventricular tachycardia in this patient was caused by too small maintenance doses of procaine amide. We are justified in this opinion by the restoration of sinus rhythm during the second injection and no later occurrence of any arrhythmias when the maintenance doses were increased. These doses will undoubtedly vary from patient to patient, depending upon the degree of hyperirritability of the heart muscle. It is the attending physician's job to find out the maintenance dose. We could not detect any untoward reactions to the drug. There was no lowering of the blood pressure which may be seen when larger doses are given intravenously. On the contrary, we observed a rise in blood pressure on both occasions, believed to be caused by better filling of the heart during diastole when the rate and rhythm reverted to normal.

Summary

A case of myocardial infarction is described in which bigemini developed on the seventh day after onset of the disease. Under quinidine treatment intermittent bigemini was observed.

On the tenth day after onset of the disease ventricular tachycardia developed. Sinus rhythm was restored with 500 mg. procaine amide intravenously. The oral maintenance doses of this drug were apparently too small, because bigemini and ventricular tachycardia recurred later on the same day.

Again restoration of normal rhythm was obtained with intravenous injection of 500 mg. of procaine amide. Larger maintenance doses were given orally with gradual tapering off, and no further arrhythmias were observed. The patient made a good recovery.

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Throughout the years, there has been a definite line of separation between the functions of the hospital and those of the health department. Health departments accepted the responsibility for the control of communicable disease within the community while hospitals confined themselves to the diagnosis and treatment of disease of patients within the institution. In recent years, there has been an awakening to the fact that these traditional functions must be broadened and integrated if the maximum benefit to the health of the nation is to be achieved. In the field of tuberculosis control, this coordination of activities is essential. The hospitalization of the tuberculous patient is but one phase of the total care. The hospitalization cannot be carried out most effectively without relationship to what precedes and follows in the life of the patient.—*Public Health Nursing,* Elva M. Lewis, R.N., August, 1950.

THE FIRST CONTRIBUTION TO A MEDICAL JOURNAL FROM MINNESOTA

An Epidemic of Scarlet Fever at Fort Snelling in 1847-1848

JAMES ECKMAN, Ph.D.
Rochester, Minnesota

> In the *Youth* of a *State Arms* do flourish; in the *middle Age* of a *State Learning,* and then both of them together for a time: in the *declining* Age of a *State, Mechanical Arts* and *Merchandise.*
>
> —Francis Bacon[3]

ONE MARCH day in 1848, in the wonderful year of Manifest Destiny of what has been called the era of "the rise of the common man,"[13] an Army surgeon at Fort Snelling in the Territory of Wisconsin sat writing at a report that had occupied his attention for some time. What was to be the city of Saint Paul was in that year "a mere collection of huts with Indians and birch-bark canoes promiscuously plenty,"[38] with scarcely a sawed frame building in the place. The first regular line of steamboats between Saint Paul and settlements down the Mississippi River had been in operation only about a year; the post office in Saint Paul was hardly two years old.[15] In the entire area which a year later was to become the Territory of Minnesota there may have been some 4,000 white or mixed-blood settlers, none of them legally established, for despite a mounting pressure occasioned by the lure of free land, the region was not yet open to settlement by the white man.[15] In Saint Paul there were surely no more than three physicians;[1] in Saint Anthony none at all.[22]

Far to the east, on that March day, James Knox Polk of Tennessee, eleventh President of the United States, was sitting for his portrait in the White House.[8] He was somewhat relieved to reflect that the treaty ending the late war with Mexico had been ratified by the Senate,* but he was still fretting over the hordes of predaceous office-seekers constantly plaguing him. On that March day, also, General Winfield Scott, the choleric Whig conqueror of Mexico, was departing from Mexico City to return to the United States, recalled by order of the President who had not been able to find a Democratic general to conduct the war for him.[11] Robert E. Lee, a captain of engineers, at the time was engaged in a methodical cartographic survey of the hills west of the Mexican capital;[16] Ulysses S. Grant, a first lieutenant of the Seventh Infantry, was whiling away his time in Mexico by climbing Popocatepetl and visiting the ancient tombs near the beautiful little city of Cuernavaca.[20] General Zachary Taylor, hero of Buena Vista and the next President, was in Louisiana, fencing rather elegantly by correspondence with Henry Clay on the subject of whom the Whigs would nominate for the Presidency in November.[7] In Washington Abe Lincoln of Illinois was sitting as the only Whig member of Congress from his state.[44] The godlike Daniel Webster, senator from Massachusetts, afflicted with "some lingering rheumatism" and catarrh, was preparing to leave Washington for Boston, alarmed at the serious illness of a daughter.[65] In New York City the aged John Jacob Astor lay on his deathbed;[36] only a month previously John Quincy Adams had died in the Speaker's Chamber of the Capitol in Washington.[43] On the opposite shores of the continent men were contesting frenetically for the yellow gold that had been discovered

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From the Section of Publications, the Mayo Clinic.

The author wishes to acknowledge his gratitude to Dr. Philip M. Hamer and Miss Elizabeth B. Drewry, of the National Archives, Washington, D. C., for making available to him the correspondence between Dr. George F. Turner and the Office of the Surgeon General, U. S. Army; Miss Lucile M. Kane, curator of manuscripts, the Minnesota Historical Society, for permitting him to examine the Franklin Steele Papers and the H. H. Sibley Papers owned by the society; to Dr. Reginald Fitz, assistant dean of the Harvard Medical School, for making available certain manuscript sources concerning Dr. Turner; and to the Boston Public Library and the Library of Congress, Washington, D. C., for allowing him to examine newspapers and other material of the period embraced by this paper.

*The Treaty of Guadalupe Hidalgo was submitted to the United States Senate on February 23, 1848; ratified by the United States on March 16 and by Mexico on May 30, and was proclaimed to be in effect on July 4, 1848. It is interesting to notice that although this treaty was ratified by the United States in March and by Mexico in May, 1848, William T. Sherman, at the time a first lieutenant of the 3rd Artillery stationed at Monterey, California, wrote that he did not receive news of the ratification until September, 1848. *See:* Miller, Hunter, ed.: Treaties and Other International Acts of the United States of America. Washington, Government Printing Office, 1937, vol. 5, pp. 207-428. *See also:* Memoirs of Gen. W. T. Sherman, Written by Himself. New York, Charles L. Webster & Co., 1891, vol. 1, p. 85.

in California some two months earlier; but in the placid Mississippi Valley no one had yet heard the electrifying news.[4]* In London the celebrated historian, George Bancroft, Polk's minister to England, was recording with elation for Secretary of State Buchanan the news of the street fighting in Paris which toppled the bourgeois government of Louis-Philippe and presaged other uprisings in Austria, Germany, Italy, Denmark and Poland in that memorable year of the revolutions of 1848.[39]

But at the remote territorial military post of Fort Snelling there were neither momentous events nor formidable personages to relieve the monotony of the March day. When the Army surgeon had finished his manuscript, he sent it, perhaps by river boat, to the *New-York Journal of Medicine and the Collateral Sciences.*[47] Armstrong[1] regarded the paper as perhaps "the first contribution to a medical periodical from Minnesota." The text follows in full.

ART. III.—*An Account of a severe Form of Epidemic Miliary Fever, which appeared at Fort Snelling, Upper Mississippi, in the Winter of* 1847-48.

By George F. Turner, M.D., Surgeon, U. S. Army.

Fort Snelling, March 22d, 1848.

To the Editor of the
New-York Journal of Medicine, &c.

Dear Sir,—I have been induced to send you this imperfect sketch, from the belief that the severe form in which this epidemic has appeared is peculiar, and because very high authorities have denied the existence of miliary fever as a primary disease. I do not know that it will be of any interest to your readers.

During the past winter there has prevailed here, and in this vicinity, an epidemic miliaria of serious character, confined almost exclusively to children, which, so far as I know, is in many respects peculiar.

The first two cases occurred almost simultaneously, about the 20th December, 1847, in children of the same family, and proved rapidly fatal, and since that time the disease has moved slowly but steadily on, attacking family after family, till there now remain but few subjects for its visitation.

In its access it resembles the eruptive fevers generally; the leading symptoms being, in a majority of cases, vertigo, drowsiness, rigors alternating with flushings, pains in the back and lower extremities, great lassitude, coldness of the feet and hands, followed generally in the course of twenty-four hours, by soreness of the throat, the inflammation usually beginning in the tonsils, which are early dotted by ulcerated points, the fauces soon becoming inflamed, and subsequently the mucous membrane of the nose. The tongue at this stage usually presents a peculiar appearance, as if rubbed with chalk; the papillae showing above the white ground of a dark red hue, and the breath is now intolerably offensive. The febrile action, which is highly inflammatory, being now fully developed, the skin is hot and red, accompanied by a sense of pricking and itching which is sometimes excessive, and delirium is apt to be present, and in favorable cases the eruption (attended by a general roughness of the surface, constituting cutis anserina), begins to appear within forty-eight hours from the first indisposition. The eruption shows itself first on the loins, and extends gradually over the back and abdomen, and often over the entire surface; the face being the last to show the rash. It is distinctly vesicular, rendering the skin rough and of a deep red; disappearing on one part and appearing on another; the desquamation, in branny scales, commencing in favorable cases about the third day from its first appearance; though in many cases the eruption has re-appeared from time to time, not in the vesicular form but merely showing beneath the cuticle, for three, four, and five weeks after the subsidence of the original disease. In one case a second eruption occurred three weeks after the disappearance of the first, closely resembling rubeola; the patches being interspersed with the weals of urticaria, and this was fatal, from the supervention of peritonitis on the sudden retrocession of the eruption.

An excessive eruption has not been as favorable as when less extensive, leaving one part to appear on another. The former cases have been attended by an increased degree of inflammation of the fauces and mucous membrane of the nose, and have been followed by more and severer sequelae.

The most severe cases have been those where the eruption from the first has been barely visible, and where gastric irritability has been great.

With a few exceptions, bronchial symptoms have been slight, or altogether wanting.

In the most favorable cases convalescence has commenced about the seventh or eighth day, though few cases have progressed to perfect recovery without relapses from sequelae more painful and serious than the original disease. In fact, this disease (except where alarming symptoms have early appeared), has not assumed its most formidable character until after the eruptive stage has terminated. Convalescence has been tedious and uncertain; and enlargements of the parotid and cervical glands, otitis, with abscess within the ear, muscular pains resembling rheumatism, and anasarca, have formed the usual sequel. Of the forty-two cases which have come under my care, thirty-seven have been children under twelve years old (and this number embraces nearly all the children in this immediate vicinity), four were adult females, and one male. Six deaths have occurred thus far. One from laryngitis, one from meningitis, two from bronchitis, all rapidly fatal (the eruption having never been fully developed, but only slightly perceptible, and that in a very limited extent), and two from peritonitis, relapsed cases, after four or five weeks from the subsidence of the original eruption. Many cases which have recovered have been of a most serious character, and altogether the disease has been formidable. As to its mode of propagation, I cannot compare it with any epidemic I have seen. As a general rule, where it has entered a family, none of the children have escaped, but have all suffered within from three to six or seven days; though there have been a few striking exceptions. In one family, two children had the disease, and after an interval of seven weeks another took it, and then a fourth after the lapse of five weeks, and a fifth a few days subsequently; the remaining three having thus far escaped.

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*The Mississippi Valley first received news of the discovery of gold in California in August and September of 1848. The exodus of gold seekers from this region to the Pacific Coast apparently reached greatest proportions between February and May, 1849. See reference 4.

In this garrison, of eleven children occupying adjoining quarters on one side of the parade, ten were attacked, and not till six weeks after the last case, did the children on the opposite side begin to suffer.

The disease is probably, under favoring circumstances, slightly contagious. I have seen, in previous years, isolated cases, and its prevalance this season seems to depend on some inappreciable atmospheric peculiarity.

It has prevailed epidemically among the Sioux Indians of this vicinity while on their winter hunt, attacking indiscriminately all ages and sexes; but with them, from causes probably connected with their mode of life, it has been comparatively mild. In the memory of the oldest Indians, this epidemic has occurred amongst them twice before, and is peculiar to the cold months in this climate.

The treatment of this disease has been dictated by general principles. Emetics of ipecac, when not contraindicated by gastric irritation, have proved of decided benefit, when given at the very onset, and subsequently mild cathartics through the whole course of the disease; though the persevering use of tepid sponging has been of more essential service than any other single remedy; allaying excessive heat of the skin, and general vascular excitement, obviating delirium and restlessness, and promoting sleep; thereby diminishing materially the risk of local congestions and inflammations; which have constituted the chief danger in recent cases.

Rooms highly heated by stoves, with imperfect ventilation, and too much bed covering, have proved in the highest degree pernicious during the eruptive stage; aggravating in a marked degree every serious tendency.

During the tedious and lingering convalescence, tonic, and alterant treatment has been indicated.*

Who was Dr. George F. Turner, surgeon of the United States Army? Assiduous biographers, after months or possibly years of exhaustive and exhausting toil, too often become infatuated with the subject of their researches, their devotion impelling them to fashion him into a stature which he plainly did not possess. Let it be said at the outset that George F. Turner was not an important figure in American history or in American medicine. Like those other Army officers now all but forgotten—Sully, Kearny, Harney, Crook—Turner was remarkable only within his own periphery and his periphery was extremely limited.

Such eminence as should be accorded him derives chiefly from the fact that in a ruthless, riotous and at times almost overwhelming wilderness scene he was a Harvard-trained physician on a savage frontier where murder, strife and inebriety more often than not demanded his best efforts. He was also, incidentally, the surgeon who at Fort Snelling succeeded Dr. John Emerson, the physician whose name today is quite obscured by that of his black bondsman, Dred Scott.

The assistant dean[14] of the Harvard Medical School discovered and very kindly furnished a manuscript memoir of Dr. Turner written in 1855 by Lt. Col. William Gouverneur Morris.[35] Morris wrote that Turner was born in Boston on April 22, 1807, although records of the Harvard Medical School show that when Turner matriculated there on November 15, 1826, he gave his residence as Richmond, Virginia.[14] Army records indicate that Turner was born in Boston.[68]

His preceptors were two of the most distinguished men in American medicine: Dr. Walter Channing (1786-1876), professor of obstetrics and medical jurisprudence at Harvard from 1815 to 1854, and one of the first men to advocate the use of ether to alleviate the pain of childbirth: and Dr. James Jackson (1777-1867), professor of clinical medicine at Harvard, acting physician to the Massachusetts General Hospital from 1821 to 1837, and one of the group which founded what, in 1828, became the *Boston Medical and Surgical Journal.*[42]

Turner as a student at Harvard was characterized by someone as "Gentlemanly, kind hearted, noble hearted, full of fun & waggery, honorable, dyspeptic, respectable but not distinguished in medical . . ."*[35] On January 26, 1830, Turner was examined by the faculty of the Harvard

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*The late Dr. C. Anderson Aldrich, director of the Rochester Child Health Institute, Rochester, Minnesota, and a member of the Section of Pediatrics of the Mayo Clinic, examined this paper and commented on April 15, 1948: ". . . after reading it over carefully I should say that this corresponds very closely with what we would now call scarlet fever, although some of the characteristics are not typical. As to the treatment with ipecac and cathartics I certainly think they would not be considered good treatment today. The sponges of course are all right. It is strange that the Doctor says nothing of nephritis as a complication which one would expect to see popping up in as many severe cases as he saw. While it appears dangerous to make a diagnosis one hundred years following an epidemic I don't think many doctors would doubt the diagnosis of scarlet fever in this case."

*Illegible in the manuscript by Lt. Col. Morris.

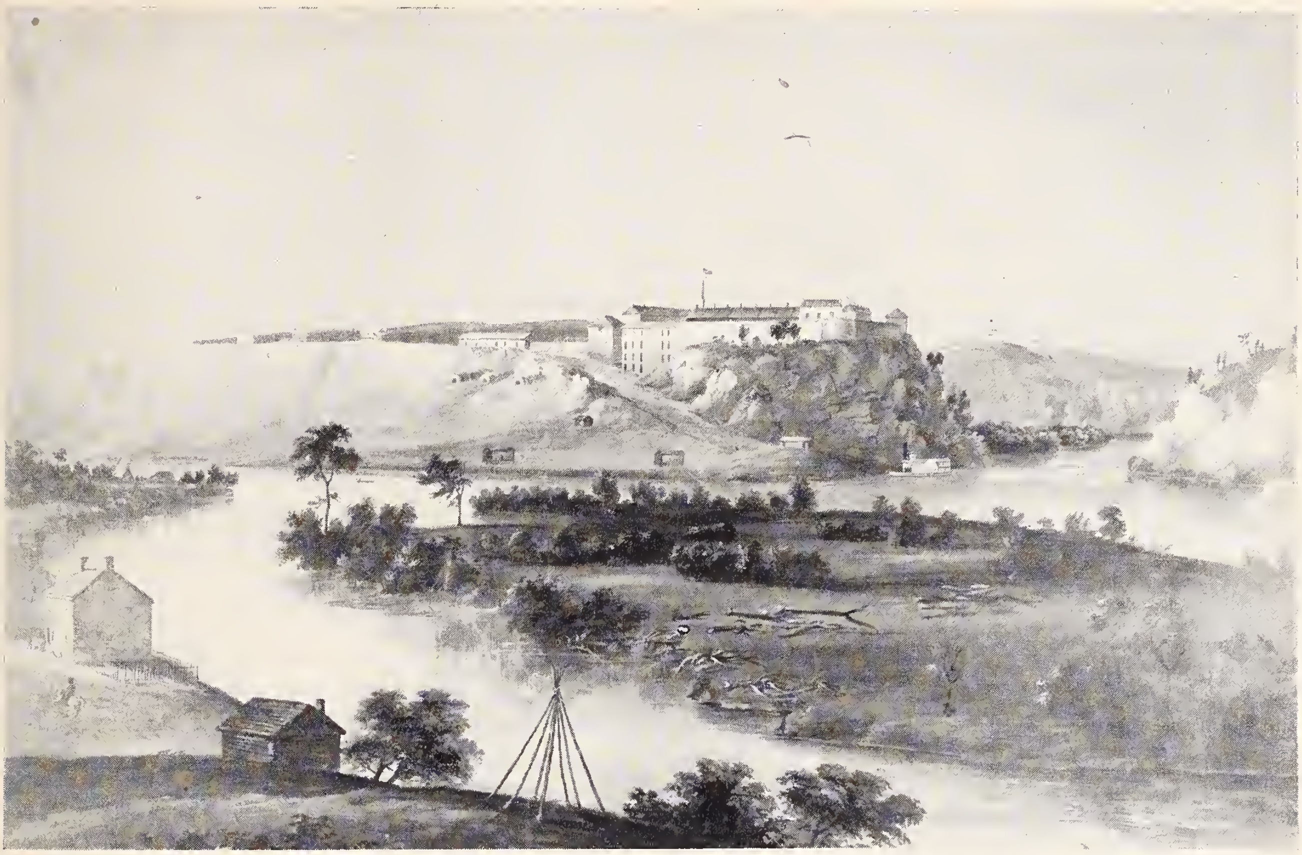

Fig. 1. Painting of Fort Snelling believed to have been done in 1844 by John Caspar Wild (1804-1846), a Swiss painter and lithographer who had settled in Saint Louis. Dr. Turner had been at Fort Snelling for four years when this view was painted. Reproduced by permission of the Minnesota Historical Society, which owns the painting. *See:* McDermott, J. F.: J. C. Wild and Fort Snelling. Minnesota History. 32:12-14 (spring) 1951.

Medical School and approved for public examination. The subject he had chosen was "Hemorrhoids," and on February 3, 1830, he successfully defended his dissertation on this subject at public examination and was recommended for the degree of doctor of medicine.†[14] It is said[35] that after receiving his doctorate he practiced medicine for awhile in Indiana; if so, no record of it is at hand. He was commissioned an assistant surgeon in the United States Army on July 23, 1833, with the grade of captain.[68]

His pay could not be regarded as exceptional. An assistant surgeon of less than five years' service in 1834 received the pay and emoluments of a first lieutenant of the line, meaning $30 a month as salary, two rations a day and forage. One ration consisted of 1¼ pounds of beef or ¾ pound of pork, 18 ounces of bread or flour, and 1 gill of rum, whisky or brandy. For every 100 rations he was entitled to 2 quarts of salt, 4 quarts of vinegar, 4 pounds of soap and 1½ pounds of candles.[2]

In November, 1833, he was sent to Fort Mackinac, Michigan, where in 1834 he married the eldest daughter of Mr. Robert Stuart, of Detroit.[35] In December, 1835, and January, 1836, he was stationed at Castle Pinckney, South Carolina, overlooking the city of Charleston.[9] For a year, February, 1836, to February, 1837, Dr. Turner was stationed in Florida, to which he returned in September of 1837. He served in Florida through June, 1838, and in July was ordered to Governor's Island, New York. In September, 1838, Dr. Turner was sent once again to Florida, where he remained until July, 1839. Surgeon Robert C. Wood (1800-1869), who had been stationed at Fort Snelling in 1829 and was assistant surgeon general of the Army from 1862 to 1865, was in Florida with Turner. He ranked thirteenth among medical officers of the Army. Turner doubtless knew him well.*[40] From October, 1839, to April, 1840, Turner was stationed at West Point, New York.[9]

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†Another Harvard-trained man who came to Fort Snelling in an early day was John Marsh (1778-1856), of Salem, Massachusetts. Marsh received the degree of bachelor of arts from Harvard College in 1823, three years before Turner enrolled in the Harvard Medical School. Marsh was at Fort Snelling from 1823 to 1825, where he was post schoolmaster and for a time acting Sioux Indian agent. He studied medicine under Dr. Edward Purcell, post surgeon at Fort Snelling, and never obtained the degree of doctor of medicine. *See:* Lyman, G. D.: John Marsh, Pioneer. The Life Story of a Trail-blazer on Six Frontiers. New York, Charles Scribner's Sons, 1930. 394 pp.

On March 7, 1840, Dr. Turner was notified by Dr. Thomas Lawson (1789-1861), surgeon general of the Army, that he would shortly be ordered to Fort Snelling, at that time in the Territory of Iowa.[27] Whether or not a prospective tour of duty in such a far-distant post played a part in his advancement is not known, but on January 1 of that year he had been promoted to the status of surgeon, with the grade of major.[68] On April 16, however, Turner was still at West Point, complaining to Lawson that his orders had not yet arrived, and that he wished to take the steamboat *Pennsylvania* at Pittsburgh on May 5, for Fort Snelling.[53] It was this vessel which had brought Brigadier General John E. Wool (1784-1869), inspector-general of the Army, to Fort Snelling in the preceding summer on a tour of inspection.[37]

By April 24 Dr. Turner was in Pittsburgh.[54] He relieved Surgeon John Emerson at Fort Snelling on May 29, 1840.[29] Oddly enough, Turner seems to have been unable to remember when he reached the fort: on one occasion he wrote that he "received of Dr. Emerson when relieved by me on 29th June 1840 $26.50,"[55] but on another he reported that he had received stores from Dr. Emerson in May, 1839,[56] which obviously was impossible. The date given by Surgeon General Lawson[29] (May 29, 1840) undoubtedly is the correct one.

It is possible that as the steamboat *Pennsylvania* drew near the confluence of the Minnesota River with the Mississippi, the Army surgeon may have experienced an emotion similar to that of a boy[5] who had first beheld the fort (Fig. 1) from the deck of another steamboat eight years previously:

> A sight never to be forgotten was when on turning a point in the river there suddenly appeared, a mile or so before us, the imposing and beautiful white walls of Fort Snelling, holding, as though by main force, its position on a high, precipitous bluff, and proudly floating the stripes and stars. It was a fortified oasis of civilization in a lovely desert of barbarism.

But it might also be that the "desert of barbarism" was a prospect dismal enough to the young physician from Boston. For a decade prior to his arrival at the fort in 1840 the irrepressible tide of those attracted to the Northwest by the great magnet of free land had been beating against the barrier constituted by the military reservation of Fort Snelling and the forbidden Indian lands beyond. Every summer, between 1830 and 1850, the number of new farms wrested from the soil in the great plains north of the Ohio and the Missouri rivers averaged about 20,000.[13a]

Only a fortnight before Dr. Turner arrived, the troops at Fort Snelling had been called out to dispossess whisky-selling white squatters from the military reservation.[37] Some of them were so disreputable that Turner's predecessor, Surgeon Emerson, had complained to Surgeon General Lawson of "the most beastly scenes of intoxication among the soldiers of this garrison and the Indians in this vicinity"; a sergeant in fact was so fond of the *aguardiente* that he had been willing to pay $80 for a gallon of it.[66]

Zachary Taylor, a decade earlier, had found the fort "a most miserable & uninteresting county" in an "out of the way part of the world."[23] Captain Frederick Marryat, author of *Midshipman Easy*, who had visited the fort two years before Dr. Turner reached it, liked it so much that he could have remained there a year with pleasure; the Indians, he thought, "must be acknowledged the most perfect gentlemen in America. . . ."[34]

But Turner himself seems to have had no very high regard for the place. To General H. H. Sibley in Washington he wrote:[64]

> We of the garrison are as usual at this season rather dull & unprofitable—small parties for Tea are a good deal the fashion, & tattle is used as formerly. Indian ball plays* are coming in season. One comes off today

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*"The service in Florida, to most of the medical officers employed there," Surgeon General Lawson wrote, "has been indeed not only irksome, but exceedingly laborious and hazardous, many of them having from the very dispersed state of the troops, to give their attendance to two, three or more posts or stands; frequently passing from one station to another without an escort and occasionally under the fire of the enemy [the Seminole Indians]." *See:* Ashburn, P. M.: A History of the Medical Department of the United States Army. Boston, Houghton, Mifflin Co., 1929, p. 54.

*Captain Seth Eastman (1808-1875), one of the finest painters of Indian scenes America ever produced, achieved what some consider his most successful painting in his "Squaws Playing Ball on the Prairie," now owned by the Peabody Museum of Harvard University. The painting depicts an Indian ballgame in which all the players are women; the locale probably is a plain before Fort Crawford. Eastman was at Fort Snelling from 1841 to 1846, and then, after a brief interruption, until 1848. His tour of duty at that place thus coincides almost exactly with that of Dr. Turner, who arrived in 1840 and left in 1848, but no mention of Captain Eastman is made in any of Dr. Turner's papers that have come to hand.

> in which stacks of property are to be invested. . . . What is the use in writing to you as I cannot find enough wherewith to fill two pages.

Dr. Turner was scarcely established at the fort before he was in trouble with the government. His name, it seems, had appeared on two different sets of pay accounts for April, 1840, and Surgeon General Lawson was properly and even punctiliously inquisitive[28]

Dr. Turner's explanation is not known. But throughout their correspondence, over many years, Surgeon General Lawson constantly upbraids Dr. Turner for minor derelictions, most of them involving only deviations from tedious Army routine.*

Lawson apparently scented a serious discrepancy when he discovered that Dr. Turner had fitted a citizen near the fort with a truss, charging him $3.00 for it. Turner replied that the man could not have obtained one except by going down the Mississippi to Galena for it, and since the man was suffering severe pain from a recent inguinal hernia, he thought circumstances warranted what he did.[58] The sum of $8.00, credited by Dr. Turner to the hospital fund, puzzled Surgeon General Lawson; Turner explained that it was paid to him by a citizen admitted to the fort "in a most deplorable condition from twenty miles distant," there being no other place at which he could be treated.[58] "As you were prompted, in both cases by motives of humanity which you could not with propriety disregard," the surgeon general sententiously wrote to Turner, "your conduct meets with my approbation."[31]

On another occasion in 1841 Acting Surgeon General Henry L. Heiskell reproved Dr. Turner because one set of routine papers from Fort Snelling was fifteen days late, and another was thirty-nine days late. "It is presumed," Heiskell wrote, in the chill, lifeless prose of desiccated officialdom, "you have some satisfactory reason for your dilatoriness; but as you have not thought proper to offer any, you are required immediately to explain the cause of the extraordinary delay in forwarding your Returns and Reports."[24] The "extraordinary delay" proved easy enough to explain. Dr. Turner's hospital steward had been ordered to Florida with the Fifth Infantry, and Turner had to assume his duties in addition to his own. He himself had been afflicted with inflamed hemorrhoids which would not allow him to either sit or stand; they in turn engendered a state which was designated as a neuralgic condition of the rectum; this confined him to bed for two months. During this period he had to arise each morning to serve for a short time as physician to the sick of the command as best he could; ill as he was, there was no physician to treat him.[48] In addition, he later reminded the surgeon general, "As the mails leave Fort Snelling but twice in the month, it may not always be possible to transmit my Returns, Reports &c. to your office within the period prescribed by regulations."[49]

On still another occasion Dr. Turner was audacious enough to send in an annual requisition written on a blank sheet torn from a bound book. This was too heinous a breach to pass unnoticed; the surgeon general remonstrated with the frontier Army physician. Turner's reply[56] was restrained:

> I have the honor to acknowledge the receipt of your communication of 29th Oct. 1842 containing in a post-script a rebuke in relation to one of my Annual Requisitions, which was made out on a Sheet from a bound book. The book in question when I removed a Sheet from it had been in use between six and seven years, and was full every page of it except two Blank Reports of Sick (of the old form), and three Blank Requisitions. The book when I received it of Dr. Emerson in May 1839* was in a most dilapidated state—a large portion of its leaves being partly or entirely separated from the binding, and moreover it had been for some time laid aside on the supposition that it was unfit for further use. Under these circumstances I could perceive no objection to applying a sheet of it to a useful purpose.

But Turner's troubles continued. He installed a barometer "in a large Strong wooden box having a latticed door—This box is securely fastened to the outer wall of the Hospital [Fig. 2] under

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*The meticulous attention which Surgeon General Lawson devoted to Dr. Turner's relatively inconsequential faults should have surprised no one who was aware of the surgeon general's crochety temperament. Lawson served as surgeon general for twenty-five years, which means that for most of that time he was seated behind a desk in Washington. "General Lawson was rather of an administrative than a literary turn of mind," Pilcher wrote, "although he wielded a trenchant pen when occasion seemed to demand it. . . . He was a pronounced adherent of 'the code' and thought that medical officers should be as ready as those of the line thus to repel and resent insult, believing that much of his success as commander of troops would not have been achieved had he not borne the reputation of being ready at any time to give or demand what was called satisfaction." *See:* Pilcher, J. E.: The Surgeon Generals of the United States Army. IX. Brevet Brigadier General Thomas Lawson, Surgeon General of the United [*sic*] Army, 1836-1861. Jour. Assoc. Mil. Surgeons, 14:405-410, 1904.

*Should be May, 1840.

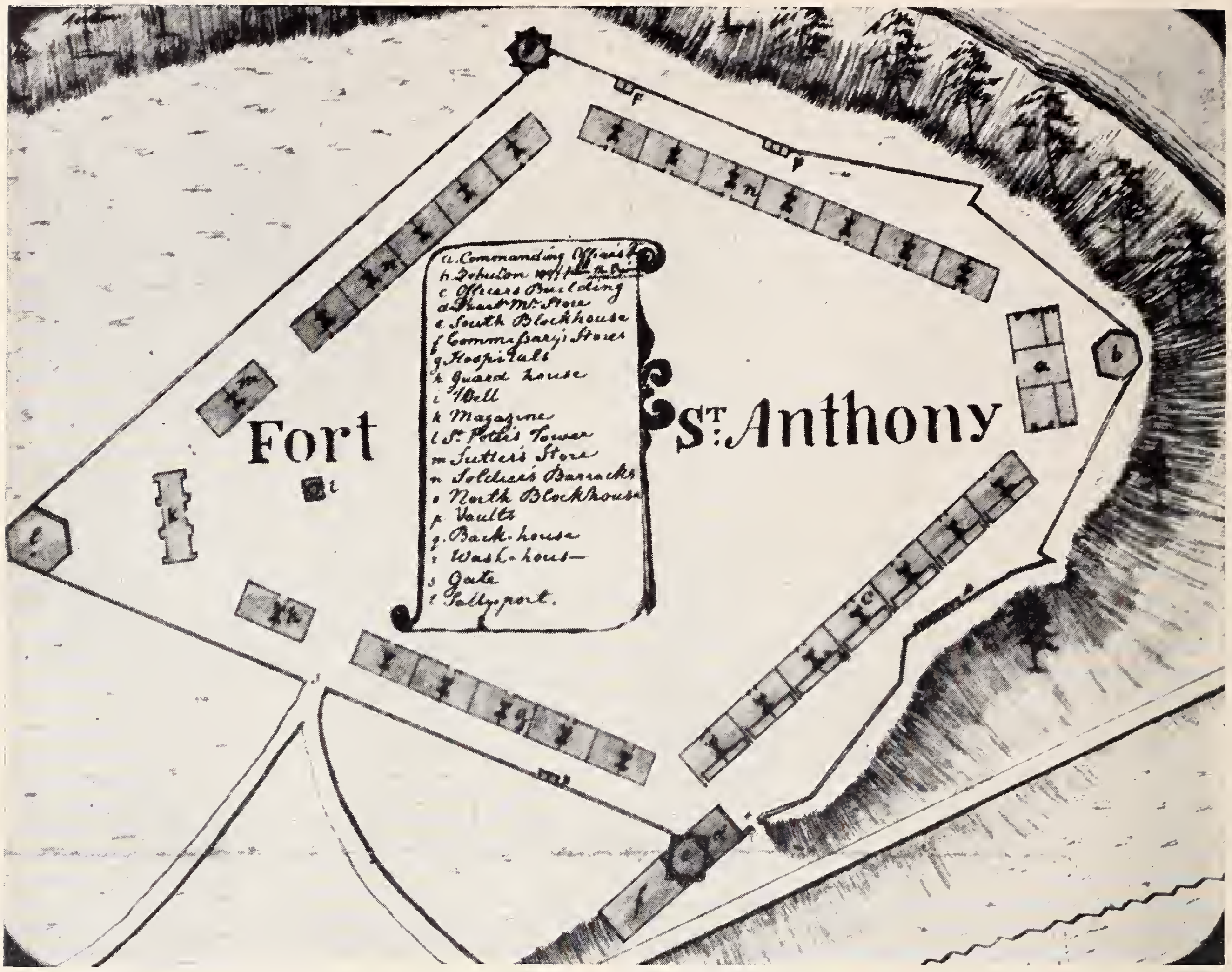
Fort St. Anthony
a. Commanding Officer's
b. Johnston
c Officers Building
d Asst Mr. Store
e South Blockhouse
f Commissary's Stores
g Hospitals
h Guard house
i Well
k Magazine
l St. Peter's Tower
m Sutler's Store
n Soldier's Barracks
o North Blockhouse
p Vaults
q Back-house
r Wash-house
s Gate
t Sallyport.
a
b
c
e
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Fig. 2. Enlargement of a portion of a large folio plan of Fort Snelling drawn by Joseph E. Heckle at some time before 1825, in which year the name of the post was changed from Fort Saint Anthony to Fort Snelling, by recommendation of Major General Winfield Scott, approved by Secretary of War John C. Calhoun. A stone hospital was built at Fort Snelling in 1830, replacing the one designated in this map. Map reproduced by courtesy of the Army Branch, Quartermaster's Records, War Records Division, the National Archives, Washington, D. C.

the roof of the Portico, exposed to the external air—"[57] This, Surgeon General Lawson evidently concluded, was a flagitious wrong. The barometer, he pointed out to Dr. Turner, "should be kept 'in an *apartment* having an equable temperature.' The temperature of the open air at Fort Snelling is by no means *equable;* your Surgery therefore would probably be a more suitable, and certainly a more convenient location for it."[30]

The Laocoön's snare of governmental regulations enmeshed Dr. Turner again in 1844, when the enlistment of his hospital steward, Joseph Reed, of the First Infantry, expired. Turner valued this soldier's efforts highly, and Reed himself was willing to reënlist. A number of difficulties presented themselves. First, there was no recruiting officer at or near Fort Snelling. Second, there were already more soldiers at Fort Snelling than the prescribed standards allowed, which would appear to bar Private Reed's reënlistment. Third, if Private Reed were allowed to reënlist at Fort Snelling, would he be required to change his station when the station of his company was changed?[59]

". . . seeing that it is particularly important at a station so remote as this where the Medical Officer has little or no opportunity for selection, to secure the services of a well tried, habitually temperate, intelligent and faithful Steward," Turner wrote, "I would respectfully suggest if it meets your approbation that the necessary authority be obtained from Gen^{l} H^{d}. Quarters for re-enlisting the above named individual as Hospital Steward at Fort Snelling."[59]

It was, apparently, a dilemma too ponderous for Surgeon General Lawson to grapple with, for he replied to Dr. Turner:

> "Your communication of the 4th Instant upon the subject of the re-enlistment of your Hospital Steward, has been received. The letter has been referred to the Adjutant General's Office, for the consideration and action of the General-in-Chief."[32]*

How the matter was concluded the correspondence does not show.

Yet, if Dr. Turner's efforts seemed faulty to Surgeon General Lawson, they certainly were esteemed by the few white settlers in the area. The Rev. Lucian Galtier (1811-1866), who came to the region in 1840, recalled that in August of that year he had been attacked by "bilious fever and ague."** He said he lay prostrate in the post hospital at Fort Snelling for two months, and that he "could not have recovered, were it not for the skill of Dr. TURNER, and the continued and kind attentions of his good lady."[18] Sibley recalled that when, in 1845, the senior Little Crow, chief of the Sioux at Kaposia village, accidentally shot himself, he (Sibley) asked Dr. Turner to go with him to attend the stricken warrior.[45] Dr. Turner did so, and when he announced that the wound would be fatal, the old chief smilingly agreed with the diagnosis. Both men were correct.

On another occasion, however, Dr. Turner's services seem not to have been valued by the Indians. A Dakota brave with the incredible name of Napehshneedoota *(Red man who flees not)* had fallen ill of a fever at Kaposia village; Dr. Turner's assistance was solicited. He sent some medicine to the Indian's tribesmen. The fever shortly thereafter subsided, but the unimpressed Indians maintained that their own medicine man could have cured the afflicted one in far less time.[67]

In 1845 a man wrote to Franklin Steele* (1813-1880), then sutler at Fort Snelling, from as great a distance as Leech Lake, saying that he had written to Dr. Turner for medicines, adding that the man who delivered his letter "will not be able to speak anything but Indian."[26]

Armstrong[1] wrote that Dr. Turner treated A. L. Larpenteur (1823-1919), then an interpreter for Indian traders, for typhoid fever in 1847 and 1848. When Dr. Turner left the fort on leave, Dr. Thomas S. Williamson (1800-1879), the Presbyterian missionary to the Sioux, apparently was paid to take his place. The Sibley Papers contain a document concluded on April 28, 1843, in which Dr. Turner agreed to pay Dr. Williamson "sixty dollars per month for your services as Physician for the command at Fort Snelling during my absence." On May 16, 1843, Dr. Turner advised Surgeon General Lawson that his medicines, instruments and hospital stores had been turned over to Dr. Williamson.[60] In the same year, Armstrong[1] noted, Dr. Williamson set down: "For attending on the Garrison and Indians for Dr. Turner, three months and eight days, $229.00. For private practice while living near Fort Snelling, $110.06."

Another curious aspect of Dr. Turner's interests while he was at Fort Snelling is mentioned in the diary of a settler who had a farm on the Mississippi across the river from the Kaposia village; in April, 1846, he recorded, Dr. Turner had "Requested me to catch him 2 or 3 Gophers."[33]

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*Major General Winfield Scott (1786-1866).

**An interesting note on malaria and his treatment of it was provided by Dr. Turner in his first year at Fort Snelling. In a communication to the surgeon general dated September 30, 1840, he wrote: "A large proportion of the cases of intermittent and remittent fever reported [from Fort Snelling] had their origin at Fort Crawford [Prairie du Chien, Wisconsin], and occurred here in men belonging to a company of infantry which returned to this post. There was nothing peculiar in the treatment of these cases, except, perhaps, the use of tartrate of antimony in combination with the sulphate of quinine, which was always prescribed when there was a reasonable doubt as to the condition of the system to bear the stimulating effect of quinine; and especially in the remittent cases, in which the diaphoretic effect of the tartrate of antimony was almost always produced when combined with the quinine, while the latter had its specific effect in preventing the recurrence of the periodic paroxysm. The following is the usual prescription: Sulph: quiniae, grs. x; tart: ant: et potass, gr. 1.; ft: pil: no. viij; one every hour during apyrexia. I consider the combination invaluable in the treatment of intermittents and remittents, but particularly the latter; and my conclusion is founded on my experience in the management of these diseases in Florida." *See:* Statistical Report of the Sickness and Mortality in the Army of the United States, Compiled from the Records of the Surgeon General's Office; embracing a Period of Sixteen Years, from January, 1839, to January, 1855. Washington, A. O. P. Nicholson, Printer [34th Congress, 1st Session, Senate Executive Document No. 96], pp. 77-78.

*Franklin Steele (1813-1880), who became sutler at Fort Snelling in 1838, bought the entire military reservation of that name, embracing more than 7,000 acres, from the Secretary of War for $90,000 on July 2, 1857, although he did not receive the deed until 1871. All the factors in this very curious transaction, which at the beginning was carried on with great secrecy, have never been satisfactorily explained. The deed conveyed only 6,394.80 acres to him because, in the interim, 1857 to 1871, the government had decided to retain 1,520 acres and the buildings of the fort. In the correspondence between Dr. George F. Turner and the surgeon general between 1840 and 1848 Dr. Turner several times mentioned the United States taxes he had collected from Franklin Steele, presumably levied on Steele's activities as sutler at the fort. *See:* Folwell, W. W.: A History of Minnesota. St. Paul, Minnesota Historical Society, 1921, vol. 1, pp. 432-434; 503-515.

Of Dr. Turner's relations with Dr. John Emerson (?-1844), owner of the celebrated Negro slave, Dred Scott,[21] nothing is known save a cryptic sentence in a letter written by Emerson's widow[12] on March 3, 1844, to H. H. Sibley: "As I supposed there was no such feeling [amity] for him [Emerson] by any one at St. Peters—for I know how bitter Dr. Turner & the Chaplain have been & how much they have done to injure him & any expression of friendship for him I have lost affords me some comfort." Nothing in Dr. Turner's letters amplifies Mrs. Emerson's complaints to General Sibley. A Bostonian, Turner may have been an abolitionist, but that is only conjecture.

Curiously enough, Dr. Turner's communications to the surgeon general disclose a short tour of duty that does not appear in the records of the Adjutant General's Office. On September 9, 1846, he sent to the surgeon general a return of instruments and stores which he had just placed in the hands of Assistant Surgeon Robert S. Holmes at Fort Snelling.[61] The next report is dated at Camargo, Mexico, December 5, 1846.[62] He had arrived there on November 24, 1846,[63] where, according to Duncan,[10] he succeeded Surgeon John B. Wells as purveyor of medical stores to General Zachary Taylor's army. Camargo, which Josiah Gregg[17] a month after Turner left it described as "the most important military depot on this line,"* in September, 1846, had become the purveying depot for Taylor's army. Prior to that, the purveying depot had been located at Point Isabel on the Rio Grande.[10]

At Camargo wretched staff work visited new miseries upon Dr. Turner: he received Army goods consigned to quartermasters at such preposterous destinations as Fulton, Arkansas, and Memphis, Tennessee;[63] he had to hire two civilian physicians to minister to Kentucky volunteers whose regimental surgeons were unaccountably absent, and was then queried by the acting surgeon general in Washington as to where the missing regimental surgeons were![25] "Considering the means at my control of performing the duties of this office," the harassed Turner wrote, "it is impossible for me to comply strictly & promptly with the regulations. I am constantly occupied in filling the requisitions of medical officers from every portion of the Army of occupation."[63]

Dr. Turner's tribulations in Mexico are not surprising, in view of Garrison's judgment:[19]

> The Mexican War (1846-48) is highly instructive to Americans as a campaign of small dimensions, entered upon caravan-wise with boyish, meridional enthusiasm, waged in an unknown country without forethought or adequate preparations, by an army equipped on a peace footing, and carried to a successful issue in spite of untold suffering from lack of clothing, supplies, rolling stock and adequate medical administration.*

Dr. Turner left Camargo on March 7[50] and arrived at Fort Snelling on May 18, 1847.[51] Nothing of moment appears in his letters to the surgeon general for the rest of that year; but on December 20, 1847, the first two instances of scarlet fever broke out, killing the two children concerned in a very short time.[47] The disease and its sequelae attacked thirty-seven children, four women and one man at the fort, taking the lives of six. It is interesting to observe that Turner believed the Sioux Indians, who he said had experienced epidemics of the disease twice previously, had developed a resistance to it.[47]

On July 31, 1848, Dr. Turner turned over his supplies and instruments to Assistant Surgeon Joel Martin (?-1854), his successor at Fort Snelling.[52] He had been ordered to San Francisco.[9]

After eight lonely years in the remote fastness of Fort Snelling and fifteen years' service in the Regular Army, his pay was still inconsiderable, even measured by the standards of the times. A surgeon of less than ten years' service received $60 a month; his subsistence amounted to four rations a day or the monetary value of $24 a month, one horse (value of $8 a month), two

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*Because the town of Camargo, in northeastern Mexico, 4 miles up the San Juan River from where that river joins the Rio Grande, could be reached by steamboat if rains were heavy enough. In 1846 the San Juan River reached a height of more than 50 feet above low-water mark, and Army steamboats laden with men and stores easily reached that town from the town of Matamoros. *See:* Porter, J. B.: Medical and Surgical Notes of Campaigns in the War with Mexico, during the years 1845, 1846, 1847, and 1848. Am. J. M. Sc. 23: 13-37 (Jan.) 1852.

*Smith, the great authority on the War with Mexico, determined that of the volunteer soldiers, only 59,000 actually saw active service. Of each 100 volunteer soldiers, disease killed twelve; of each 100 regular soldiers, disease killed eight. Of each 100 volunteer soldiers, one was killed in battle or died of wounds; of each 100 regular soldiers, three were killed in battle or died of wounds. *See:* Smith, J. H.: The War with Mexico. New York, the Macmillan Co., 2:318-319; 511-512, 1919.

servants or the monetary value of $33 a month (they had the pay, subsistence and clothing of a private soldier), or a total of $125 a month.[41] Turner, with more than ten years' service, would have been paid somewhat more, but not much more.

During these tedious and no doubt frustrate years at Fort Snelling, Dr. Turner's chief delight may have been his daughter, born on December 22, 1841.[64] Possibly she was born at the fort, although there is nothing to indicate that such was the case. All that is known of her is that she perished tragically with her father, a dozen years later.

Dr. Turner was stationed at San Francisco until August, 1850.[9] He then served at various posts in Texas; in June, 1851, in his quarterly report to the surgeon general, he included a description of the town of Austin, and seemed to be well pleased with both the country and the climate.[46] In October, 1854, he was stationed at Corpus Christi, Texas.[9] A month later a newspaper in Boston published this melancholy note:[6]

> .. TEXAS. *Corpus Christi, Oct. 28.* The sickness of the South, which in former years has spared us, has this year not been so partial in our favor; a good many have been sick, and a few have died. Among the latter, Dr. Turner (surgeon of the U. S. Army), and his daughter, a beautiful young lady of twelve years, and a servant girl in the same family, have died. . . .

Dr. Turner died of dengue fever at Corpus Christi on October 17, 1854.[35,68] The young daughter of whom he had written[64] so proudly to General Sibley in 1842 apparently died with him.

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President's Letter

IS BUTTER BETTER?

Some time ago, the dairy industry was making use of a slogan that, in my opinion, was very appealing. The slogan was "It's Better with Butter." Immediately the imagination was stimulated to familiar pictures of crusty slices of bread, with rich, golden topping, or stacks of hot, tender wheatcakes, drenched with a flood of melted butter.

The country cooking that most of us have sampled at one time or another in our youth was based on recipes that called unabashedly, for a cup of butter, a half dozen eggs, generous amounts of heavy cream, and the like.

Hearty, nutritious foods are a tradition in this country; we have glorified in an abundance of good things for the table, and, not incidentally, have developed into the healthiest nation in the world—with notable progress in fields of both physical and mental achievement.

As a physician, I take deep pride in the health we enjoy and I look toward even greater strides in healthy living, advances which may not be completed in my lifetime, but which are being presaged with increased clarity each day.

For reasons which are, then, partly scientific—the contribution that natural dairy food products have made to health through good nutrition—and partly because of a personal regard for the esthetic appeal of these wholesome foods which have formed a background of culinary and even cultural traditions—for these reasons I am extremely doubtful of the ultimate success of the intermittent efforts of various individuals and groups to crowd butter off the American table with a substitute.

The decision of butter vs. any substitute is one that will be made by the American people, and it is my opinion, and the opinion of many of my friends and associates in the medical profession, that nothing can nor will take the place of butter.

J. F. Norman

President, Minnesota State Medical Association

Editorial

Carl B. Drake, M.D., *Editor;* George Earl, M.D., Henry L. Ulrich, M.D., *Associate Editors*

DIABETES DETECTION WEEK —NOVEMBER 11-17

WHILE the discovery of insulin has been invaluable in the treatment of diabetes, the disease still deserves serious consideration, for it is on the increase and ranks eighth as a cause of death. Unknown cases of diabetes should be recognized so that advantage may be taken of modern treatment.

This is the purpose of Diabetes Detection Week—a nation-wide drive sponsored by the American Diabetes Association. The Detection Week spearheads the year-round effort to uncover cases of diabetes and to spread information about the disease. The Diabetes Detection Week Committee, to which Dr. Moses Barron of Minneapolis has just been appointed, has supervision of this particular activity of the association.

Some twenty-eight state medical associations and over 500 county medical societies have established diabetes committees. All state associations and every county society should have such committees.

What can physicians do to co-operate with the American Diabetes Association? In the first place, they can test each patient and members of their families for glycosuria. This should be done at least once a year. They can urge the appointment of a committee in their country medical society to carry on locally the detection and publicity work in their locality.

The principle of self-testing was approved by the American Diabetes Association as far back as June 5, 1949, and by the AMA House of Delegates on June 28, 1950. The Clinitest or Galatest is so simple that the convenience of home-testing seems to justify the approval of self-testing in this instance. Ninety minutes after a meal is the most likely time to detect a mild case of diabetes.

Minnesota is one of the twenty-eight states that have a state committee on diabetes. Dr. John R. Meade is chairman of the committee. Six county medical societies in the state will co-operate in putting on a detection drive during the designated week.

While each succeeding drive the past three years has been more successful than its predecessor, local success depends on local endeavor. Last year the city of Virginia, Minnesota, set the example for the United States in having the most successful drive of any city in the country.

With the co-operation of druggists, public health nurses and local press, a drive may be organized in any community. Literature is available at the headquarters of the American Diabetes Association, 11 West 42nd Street, New York 18, New York. The association will be glad to send pamphlets on organizing successful drives in a community.

If it is too late to organize a drive this year, start the ball rolling in your locality to put on an all-out drive next year.

SERUM HEPATITIS

A VERY illuminating presentation of the subject of hemologous serum jaundice or serum hepatitis was presented in the June issue of *What's New,* published by Abbott Laboratories.

A virus capable of producing a serum hepatitis can apparently remain viable in an immunized host for years. Injection of even a minute amount of such contaminated blood parenterally is capable of causing serum hepatitis in a matter of ten to twenty-one weeks following the injection.

The injection may be an intravenous transfusion of whole blood, plasma or serum. The greater the number of sources of pooled blood, the greater the chance of producing a serum hepatitis, for only infinitesimal amounts of infected blood are needed to produce the infection.

Intravenous injections of any sort for syphilis, diabetes, arthritis and the like, or parenteral injections of the antibiotics, vitamins or the like, for which a syringe or needle insufficiently sterilized after contaminated by blood from an infected individual can cause a serum hepatitis.

The experience of the United States army in

1942, in which some 28,585 cases of hepatitis and sixty-two deaths followed inoculations with yellow fever vaccine which was made with human serum, is recent enough to have left a vivid impression in the minds of many a physician who came in contact with the victims. The British army had a similar experience from the use of pooled mumps and measles convalescent plasma during World War II. As far back as 1920, Stokes and his co-workers at the Mayo Clinic reported seventy cases of "epidemic infectious jaundice" among 5,200 patients given antisyphiletic treatments during the preceding four years. In 70 per cent of the cases incubation was seven to twenty-three weeks.

Irradiation of blood is apparently not 100 per cent preventive, as demonstrated by four reports of cases of serum hepatitis following the use of irradiated plasma which appeared recently in the JAMA.

Certain conclusions from these observations may be drawn.

Since the virus is contained in the blood of the infected individual, thorough cleansing of syringe and needle is indicated. The mere cleaning by the use of alcohol of a lancet used to draw blood is definitely insufficient. Dipping in alcohol and flaming the lancet should assure safety. The boiling of needles and syringes for a few minutes is not 100 per cent preventive. Dry heat at 160° C. (320° F.) for an hour is the method recommended in the article mentioned. A prospective blood donor who has had jaundice of any type should not be used. This policy has been adopted by the Red Cross.

As serum hepatitis has been transmitted by accidental inoculation of infected blood through the broken skin, from a scratch or prick, care should be taken by laboratory technicians and physicians in the handling of blood or organs so as to avoid self-inoculation.

While the percentage of infected individuals is small, the danger of producing serum hepatitis by transfusion deserves due consideration. While the syringe is a less likely source of transmission of disease, yet it deserves consideration. In some hospitals a blood solvent, alcohol and ether are used successively before the syringe is autoclaved. Doubtless more careful cleansing of instruments contaminated by blood is advisable.

PHYSICIANS' INCOME IN 1949

THE survey of Physicians' Income undertaken by the Bureau of Medical Economics and the Office of Business Economics of the United States Department of Commerce was made public first in the July, 1951, issue of the *Survey of Current Business*, United States Department of Commerce. Dickinson and Bradley* presented an analysis of the survey which includes interesting data which merit mention at the risk of repetition.

Physicians may have been curious in the past as to the true status of the profession as a whole in the earning scale. This is the first survey to be made on a large enough scale to provide figures from which reliable conclusions may be drawn. The profession co-operated to the extent that over 55,000 of the 125,000 questionnaires sent out were filled in and returned. Some 30,000 were analyzed Figures for the interns and residents, military physicians and those who received most of their income from a medical school were excluded. The aim was to obtain figures for physicians in private practice dependent either on fees or salaries or both.

The average net income for all physicians in 1949 was $11,058. This figure is approximately 60 per cent of the gross income and represents the gross income minus the cost of practicing. In other words it costs $2.00 of every $5.00 collected to practice medicine. This income figure may seem low to specialists in their prime (forty to fifty years), and it may seem high to general practioners younger or older than this most productive decade in a physician's life. General practitioners, as is to be expected, average some $3,000 less and full specialists some $3,000 more than the general average. Salaried physicians average considerably less than independent ones, but they have certain compensations in the way of social security and retirement plans which partly at least make up for less income.

This average figure of $11,058 is some 150 to 170 per cent above the average income of $4,000 to $4,400 estimated for the years 1935-1939. This compared with the rise of 179 per cent per capita for the nation at large shows that the profession is just about keeping up with the inflationary trend since World War II—which is as it should be. It is interesting to note that this rise in income is not due to a 150 to 170 per cent increase in fees. According to the United States Bureau of Statistics, fees of physicians were only 38 per cent higher in 1949 than in the 1935-1939 period. The explanation according to the authors may be due to better collections and a greater output per physician because of more office and hospital work, increased technical assistance, better transportation and the like.

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*Dickinson, Frank G., and Bradley, Charles G.: Survey of physicians' income. J.A.M.A., July 28, 1951.

It is interesting to note further that the average income of physicians in 1949 was greater than that of the lawyers. The reverse was true in the twenties and thirties. The average for the dentists in 1948 was about $4,000 less than for the physicians in 1949 but showed an increase of 154 per cent, according to a survey published in January, 1950, by the United States Department of Commerce.

An interesting observation as to physician and income taxes is again brought out in this report. The accumulated investment of an intern in his seven or eight years of premedical and medical education is well over $30,000. A residency of three or four years adds thousands more. The years of returns from his investment are reduced because of his long period of education and training, and thus he will pay more income tax during his period of productivity than the individual who earns the same amount over a longer period of years.

Of further interest in the survey is the discovery that physicians in the far west—Arizona, Washington and California—do the best, while those in the New England states have the lowest incomes. In the group of salaried physicians Minnesota, North Dakota and New Hampshire are at the top of the list. We suspect the Mayo Clinic has some causative relation here.

As to the relation of the size of a municipality to income, those in towns of 1,000 or less in population have the lowest incomes and the incomes increase as the size of the cities increase up to the group of 250,000 to 500,000, above which they decrease. This suggests that cities of over 500,000 are probably over supplied with physicians, and this fact merits serious consideration in the selection of a location by young physicians. The well-known higher cost of practice the larger the city also undoubtedly has a bearing on this observation.

As to specialties, the neurological surgeons head the list, with the pathologists second. When it comes to salaried physicians, the roentgenologists head the list, with pathologists second.

According to the authors, the survey shows no general economic evidence of a national shortage of physicians such as is often voiced. If there were a shortage, the income of the profession would have outstripped the general percentage increase in all incomes incident to the inflationary trend since World War II.

MINNESOTA DEPARTMENT OF HEALTH

Additional Report of Death Associated With Pregnancy

During the past year the Maternal Mortality Committee of the Minnesota State Medical Association in co-operation with the Minnesota Department of Health has carried out an intensive and thorough study of each maternal death in Minnesota. The study included not only deaths due directly to pregnancy or the puerperium but also all female deaths where pregnancy was present but was not the cause of death and the postpartum period for three months following delivery. The study is now in its second year and it is planned to make this a continuing study, indefinitely, in an effort to still further reduce preventable maternal deaths.

Occasionally, pregnancy and the period of gestation or the postpartum period for three months is omitted from the death certificate when there is another specific cause of death. In such cases the Maternal Mortality Committee must use other means to identify such deaths. In order that the study may be as complete and as objective as possible it is important that reports of all deaths related to pregnancy or the puerperium should be made as promptly as possible to the Minnesota Department of Health. It is also important that the hospital, the physician, and the patient should be protected in the use of these confidential records.

In order that maternal deaths may be studied more promptly the State Board of Health has adopted the following regulation, effective July 20, 1951:

"Reg. 125. Any death associated with pregnancy (including abortion and extra-uterine pregnancy) or the puerperium (for a period of three months' postpartum), whether or not it is the actual cause of death, will be reported to the Minnesota Department of Health, Division of Maternal and Child Health by mail within three days after such date, by the attending physician and by the hospital where the death occurs.

"The following information will be included in the report:

Name and address of woman
Date of death Age at death
Cause of death
Name of attending physician and address
Name of hospital and address

"The above report is in addition to the usual report by death certificate to the Division of Vital Statistics as now required by law."

Medical Economics

Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association
George Earl, M.D., Chairman

WELFARE STATE CALLED NON-REDUCIBLE

The dismal and inevitable course of socialism and the welfare state is still seen to vary little in countries where it has gained a foothold. Of the many nations of Europe where the scheme has been implanted, Norway is an example of the non-reducible quality of welfare state "service." According to Dr. William T. Bean, Principal, Butler (Pa.) High School, who is studying Europe's social services, "Norway's program . . . which is very extensive, has not been expanded; neither has it been reduced. . . . It would be almost impossible for any government to reduce the services at this point."

"Free Ride" Exposed

Dr. Bean warned about what Americans know is true of the socialist state—that "these non-reducible services, plus expenditures for defense, have produced a tax binder (shackle) and government control that are almost ruinous. . . ." Any socialistic service, like government medicine, becomes bound up so thoroughly in its own entanglements, that it is impossible to extricate it from disastrous government controls. Dr. Bean reports:

> "Government control is very extensive indeed. In addition to levying taxes, and thereby exercising a considerable measure of control, it has necessarily extended control over the lives of the people as it has extended services to them, and as it has taken over responsibility for their welfare. The people complain bitterly about the high taxes and government restrictions but they would never reduce the very thing that causes them. Obviously many people had expected these things to be done without any personal inconvenience to themselves. It is the old story of the 'free ride' exposed."

The proponents of the socialized state should learn of socialism's fallacies from the bitter experience of European nations. They have been repeatedly warned of the dangers involved in welfare state ideas, such as socialized medicine, but seem to continue to think that they themselves would be immune to the overpowering economic disadvantages that go with a socialized state.

Echoing this feeling, a recent issue of *Insurance Economic Surveys* has this to say about Dr. Bean's report:

> "If 20th Century 'Democratic' Socialism has proved one thing—it is that political ownership, management or control of the facilities of production, cannot succeed in a free society. It always reduces production of goods and services and thus lowers the living standard. Complete Socialism requires the enslavement of the people. It requires rigidly controlled and enforced labor. It destroys the last vestige of individual freedom. England and Norway and the other Socialist countries may someday get rid of their Socialist governments but their road ahead, under any circumstances, is not pretty. Socialism has infected their future. For the sake of our American employes and for the sake of all our children we must not let its disguised ideas take root here."

"CONTROL THROUGH PURSE" SCORED BY BRITISH M.D.

Although little has been heard lately from the British medical profession regarding their coping with the National Health Service, an occasional rumble of protest comes through, showing American doctors that the protests are very real in Britain, and that doctors throughout America should be constantly guarding their own cherished freedoms. Such a protest is reported in a current editorial in *Postgraduate Medicine,* wherein sound, logical reasons are presented for the doctors' objections to the scheme.

The editorial reports a lecture of Dr. T. T. Fox, who said that, in spite of some feeling that the health service had greatly enlarged the freedom of doctors by eliminating some of the commercialism found in the direct payment of bills by patients, he recognized that "payment of the profession from public funds could pave the way to control of the physician by the administrators through the purse."

Control through the purse seems always to be the main foundation of socialistic schemes. Dr. Fox and other alert British doctors have found this to be tragically true and seem to have learned their lesson. But, they find themselves in a position where their hands are literally tied, for the entrenchment of socialism is deep and nearly immovable. British physicians should be commended for their attempt to cope with the situation bravely, but their courage and fortitude could well be directed to doing more about ridding themselves of socialist shackles, instead of merely putting up with them.

COST OF LIVING INCREASES BEYOND MEDICAL CARE COSTS

Complaints about high physician fees can be countered with the recently revealed 1950 Consumers' Price Index, which shows conclusively that the costs of medical care have not risen as rapidly as, nor in proportion to, the costs of general goods and services. Dr. Frank G. Dickinson, Director of the Bureau of Medical Economic Research of the American Medical Association, has analyzed this recent report, stating that it is considered "our best general measure of the purchasing power of the consumer's dollar."

Advances in medical care costs have not kept pace with those of the general cost of living—and that advantage has been passed on to the user of that service. The price of medical care has risen 48 per cent since the base period (1935-1939), while the general cost of living has risen 72 per cent. According to Dr. Dickinson's report, this means that a dollar in the base period could buy a dollar's worth of medical care or other goods and services, but a dollar in 1950 could buy only 58 cents' worth of all goods and services. However, this 1950 dollar could buy about 68 cents' worth of medical care.

Dr. Dickinson analyzes this small increase in the price of doctors' services:

> "The relatively small increase in the price of physicians' services in an inflationary era is to be expected. These prices are influenced by custom and are not as sensitive to changes in the economy as are the prices of most goods and services—particularly those whose prices must cover the costs of many other items used in their production. Physicians' fees belong to a class known as 'sticky' prices; they move neither up nor down as rapidly or as far as other prices. The economic position of the physician, however, becomes adjusted to changes in the rest of the economy in other ways. Thus, while physicians' fees had not increased as much as other prices, by 1949 the physician's collections had become so much better and his 'output' so much greater that his over-all income had increased since 1935-1939 just about as much as the national income per capita. In order for the physician to retain the same economic position in a time of rapidly changing price levels, it is not necessary for him to change his price to the extent that other prices have changed."

SHEARON SCORES "PIECEMEAL SOCIALIZATION"

Marjorie Shearon has again lashed out against what she calls "piecemeal socialization" in the Federal government. Feeling that since the issue of outright socialization of medicine has been largely met and defeated, she warns that there are many forces still trying to socialize in small ways and gradually develop a completely socialistic form of government. One of these schemes is the bill for "free hospitalization insurance" for the aged, which would be brought within the scope of the Social Security bill.

Ewing objects to the term "free hospital insurance" because he says that workers would pay for it with their Social Security taxes, just as they "pay" for their old-age insurance. But, says Mrs. Shearon, "since the OASI system is not financially sound and since many workers pay only ten cents on the dollar for the benefits they receive, it is ridiculous for Ewing to talk about the OASI system 'paying' for the 'hospital insurance for the aged.' The Federal Security Agency invariably sells, or tries to sell, its programs and its bills by misrepresenting costs and the long-range, overall plan for setting up a completely Socialistic State."

Government Insurance Subsidized

Ewing has made his usual criticism of private insurance by citing "the failure of private hospitalization to meet adequately the needs of the persons who would be protected under the proposed program," and claiming that this failure "caused some persons to go without needed hospitalization." Mrs. Shearon's comment is: "Of course, if private insurance could be as heavily subsidized for adverse risk as is Government 'insurance' under the Social Security System, private insurance could cover as many people as Ewing proposed to cover."

Another weak argument Ewing uses for his proposed plan is this statement: "Some get hospital services for which they or their relatives pay by sacrificing other essentials, depleting savings or going into debt."

And the statement is answered by Mrs. Shearon:

> "From this we judge that Ewing disapproves of people paying their own way in the world. And what are savings for if not to be used for the proverbial rainy day? As for going into debt, there is more validity in assuming debt for a hospital bill than for a television set or other luxury. We mention these differences in viewpoint because we think Ewing's philosophy is once again demonstrated to be completely Socialistic. According to his way of thinking, no one should save, no one should pay his own bills, no one should assume personal responsibility for the things he needs in life. Instead, everyone should depend on the Government."

VOLUNTARY INSURANCE COVERS OVER HALF OF AMERICANS

The latest report of the Health Insurance Council shows that at least half of the nation's population at the end of last year was covered by one type or other of voluntary protection against the economic hazards of sickness and accident.

The report also revealed that all forms of voluntary health protection scored tremendous gains in 1950, to set new records. Hospital expense protection covers the largest number of people and was extended to nearly 80 million persons—17 per cent greater than the figure of the preceding year. The number of people protected against hospital costs has more than doubled since the end of World War II—attesting to the growing appreciation of voluntary insurance advantages.

Surgical and medical expense coverage also increased greatly. About 54 million persons had protection against surgical expense, which amounted to an increase of 32 per cent over the preceding year. A year-to-year gain of 28 per cent was recorded by medical expense protection which covered nearly 22 million persons in 1950.

MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

Julian F. DuBois, M.D., Secretary
230 Lowry Medical Arts Building
Saint Paul, Minnesota

SAINT PAUL DENTIST CONVICTED OF ILLEGAL PRACTICE OF HEALING

Re. State of Minnesota vs. Earl S. Weber

On August 10, 1951, Earl S. Weber, fifty-five years of age, was sentenced by the Hon. Arthur A. Stewart, Judge of the District Court of Ramsey County, to pay a fine of $500 or to serve ninety days in the Ramsey County Jail, following a plea of guilty by Weber on August 7, 1951, to an information charging Weber with the crime of practicing healing without a basic science certificate. Weber paid the fine.

Weber, a licensed dentist, who maintained an office at 311 Newton Building, Saint Paul, was arrested on July 31, 1951, following a joint investigation by Saint Paul police officers and representatives of the Minnesota State Board of Medical Examiners. The investigation disclosed that a twenty-five-year-old married woman had gone to Weber for the purpose of having an abortion performed. Weber denied that he intended to perform an abortion but admitted that he made a vaginal examination of the patient, advised the patient she was pregnant and inserted "about 12 inches of gauze in her vagina." Weber was paid $50.00 for his services. The patient became ill and was hospitalized in a Saint Paul hospital.

Weber has a previous conviction of a felony, having entered a plea of guilty on January 27, 1949, in the District Court of Ramsey County to an information charging him with the crime of abortion. For that offense Weber was sentenced to a term of not to exceed four years in the State Prison, but the sentence was stayed and Weber placed on probation for a period of four years. His probationary period, however, was terminated on May 10, 1951. When legal counsel for Weber made a plea to the Court for leniency on the grounds that Weber is one of four Negro dentists in Saint Paul and that his dental services are in demand by the Negro population of this City, Judge Stewart pointed out that Weber had a prior conviction for abortion and became involved in another difficulty within three months from the time he was released from probation. Weber is a graduate of the Dental School of the University of Minnesota in 1921. He has surrendered his dental license and his annual registration card for cancellation.

MINNEAPOLIS MAN SENTENCED FOR SALE OF POLIZER DEVICE

Re. State of Minnesota vs. Otto W. Dressler

On September 17, 1951, Otto W. Dressler, seventy-four years of age, formerly of 204½ Tenth Street South, Minneapolis, was sentenced by the Hon. Harold N. Rogers to a term of six months in the Minneapolis Workhouse following a plea of guilty entered by Dressler on July 27, 1951, to an information charging him with the crime of practicing healing without a Basic Science certificate. Dressler was arrested on June 13, 1951, following a complaint being made by a Minneapolis man that Dressler had sold him a Polizer device as a cure for asthma. Dressler charged $41.50 for the device. The purchaser claimed that he received no benefit and made a complaint to the Minneapolis Police Department. The matter was referred to the Minnesota State Board of Medical Examiners following which Dressler was arrested. Dressler stated to the Court that while he still believed in his device, he was no longer engaged in such work and had moved to Eau Claire, Wisconsin, where he is living with a son. The Court then stayed the execution of the sentence for two years on condition that Dressler does not, in any manner, violate the Minnesota Basic Science law or Medical Practice act. Dressler made restitution of the $41.50.

Dressler has a previous conviction in the United States District Court in Minneapolis, where he was found guilty on December 31, 1949, by Judge M. M. Joyce of "having unlawfully shipped in interstate commerce a certain device, to-wit: Polizer, in violation of the Federal Food, Drug and Cosmetic Act, in that said device was misbranded." For that offense Dressler, on June 12, 1950, paid a fine of $100. In that case the Government charged that the Polizer device was represented as being efficacious in the cure and treatment of over 60 ailments ranging from arthritis to heart trouble. The Government offered evidence that the device was misbranded because it had no therapeutic value whatsoever. Judge Joyce pointed out that expert witnesses of the highest rank in the State of Minnesota had examined and tested the Pol-izer device and found that it was without any therapeutic value and, therefore, useless in the treatment of any such ailments.

MINNEAPOLIS MAN SENTENCED FOR AIDING IN ABORTION CASES

Re State of Minnesota vs. John E. Capra

On September 13, 1951, John E. Capra, thirty-three years of age, 1500 Third Avenue South, Minneapolis, was sentenced by the Hon. Theodore B. Knudson, Judge of the District Court of Hennepin County, to a term of not to exceed four years in the State Prison at Stillwater, following a plea of guilty entered by Capra on August 15, 1951, to an information charging him with the crime of abortion. Capra, who holds no license to practice any form of healing in the State of Minnesota, was placed on probation by Judge Knudson for a period of three years. The Court warned Capra that any violation of his probation would result in his being committed to the State Prison.

Capra was arrested on May 8, 1951, by Minneapolis police officers following an investigation by representatives of the Minnesota State Board of Medical Examiners and police officers from Minneapolis and Saint Paul. That investigation disclosed that a twenty-two-year-old Benton County girl was seriously ill at a Saint Cloud hospital following a criminal abortion performed by one Frank H. Masterjohn in the room of the defendant Capra at 1500 Third Avenue South, Minneapolis. Capra, a bartender, admitted to the Court that he had sent seven to nine cases to Masterjohn for a similar purpose. Masterjohn was arrested at the same time and entered a plea of guilty on May 24, 1951, but was awaiting sentence at the time the case against the defendant Capra was completed in Court. Capra also stated that he received $25.00 from each of the first several abortion cases and $100, or more, from each of the last four or five abortion cases. According to Capra, the abortions were all performed by Masterjohn in the living quarters of the defendant Capra.

Despite the encouraging decline of the death rate, and new techniques which should be helpful in the future, tuberculosis is still one of the most important public health problems. It will take many many years of undiminished energy to reduce it to an unimportant level.—James E. Perkins, M.D., Transaction, 1950, Conference of Public Health Association, New York City.

PRIVATE HEALTH INSURANCE GAINS

The Health Insurance Council is made up of nine trade associations in the life and casualty insurance fields. The reports of the Council, therefore, should be reliable. Its fourth annual Survey of Accident and Health Coverage in the United States indicates that at least half of the nation's population is covered by some type of voluntary insurance against the hazard of sickness and accident.

Those protected against hospital expense had been increased to 76,961,000 at the close of 1950, an increase of 17 per cent over the figure of 66,044,000 the year before. The present number of insured is double the number insured at the end of World War II.

Protection against medical expense also increased by leaps and bounds in 1950. Insurance against surgical expense was provided to 54,477,000 persons by the end of 1950 which is an increase of 32 per cent over the figure of 41,143,000 covered at the beginning of the year. Insurance against medical expense, as distinguished from surgical expense, covered 21,589,000 persons, an increase of 28 per cent over the figure of 16,862,000 in 1949.

Disability or weekly indemnity which provides protection against loss of income due to disability also showed an increase of 9 per cent to include 37,293,000 persons which is 60 per cent of the employed civilian population entitled to such benefits.

These figures do not include individuals covered solely by compulsory government insurance but include the types of insurance provided by insurance companies, Blue Cross, Blue Shield, fraternal bodies, industries, medical societies, universities and other private organizations.

There is every reason to expect a still further increase in 1951. Just what percentage of the population must be covered before the proponents of compulsory health insurance, who have claimed that health insurance under private auspicies can never supply the need, will be convinced of their error?

1951
BUY CHRISTMAS SEALS
FIGHT TUBERCULOSIS

Minnesota Academy of Medicine

Meeting of March 14, 1951

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town and Country Club on Wednesday evening, March 14, 1951. Dinner was served at 7 o'clock and the meeting was called to order by the Vice President, Dr. O. H. Wangensteen, in the absence of the President.

There were forty members and two guests present.

The scientific program followed.

HYPERTROPHIC PYLORIC STENOSIS

HAROLD F. FLANAGAN, M.D.

Dr. Harold F. Flanagan, of Saint Paul, read his Inaugural Thesis on the above subject. Lantern slides were shown. (See page 957.)

AVASCULAR NECROSIS

With a Report of Cases Involving the Distal End of the Clavicle and Odontoid Process

EDWARD T. EVANS, M.D.

Dr. Edward T. Evans, of Minneapolis, read his Inaugural Thesis on the above subject. (See page 970).

The meeting was adjourned.

Wallace P. Ritchie, M.D., *Secretary*

Meeting of April 11, 1951

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town and Country Club on Wednesday evening, April 11, 1951. Dinner was served at 7 o'clock and the meeting was called to order at 8 p.m. by the President, Dr. W. H. Hengstler.

There were fifty-six members and two guests present.

Minutes of the March meeting were read and approved.

Dr. Martin Nordland read the following memorial to Dr. Gustav Schwyzer, and a motion was carried that this be spread on the Proceedings of the Academy and a copy sent to the widow.

GUSTAV SCHWYZER

Dr. Gustav Schwyzer, a member of this Academy, died suddenly at his winter home in Biloxi, Mississippi, February 2, at the age of eighty-three. He was born in Switzerland and educated to the profession of medicine in Europe. As a relatively young man, in the latter part of the last century, he came to America, bringing with him a knowledge of surgery which was far in advance of that practiced in this region at that time. His training in goiter surgery under Theodore Kocher made him a pioneer here in this field. He gave of his knowledge freely to his colleagues and earned their respect for his skill.

Dr. Schwyzer was a man of dignity, respected by all. He never sought the popularity of the crowds, but by those who knew him well was counted a beloved man in whom they could place confidence and trust. He was always loyal to those who became his friends. He displayed a full measure of sympathy toward his fellowmen. The wide extent of his charities is not known to the casual observer, but his generosity was deeply appreciated by scores of persons whom he befriended.

Dr. Schwyzer loved life and lived intensely. He was a man of great courage and energy. He channeled this knowledge, courage and energy to the welfare of his fellow man through his surgical work. His interest in his profession continued to the end. He loved the Academy and attended the last time in November, 1950.

His indomitable spirit was the admiration of all who knew him. Not only was this true for the friends in his adopted land, but the memory of his spirit has lingered in his native Switzerland where in February services were held in his honor. Never did this spirit bow to illness or adversity of any kind. It carried him courageously forward, and he lived life to its fullest until his sudden death on February 2, 1951.

He contributed many articles to the literature of goiter on which he was considered an authority. In Halstad's "Operative Story of Goiter," his name is mentioned in the first successful operative cases reported by Kocher in 1898.

He was a charter member of the Minneapolis Club, a member of the Founders Group of the American College of Surgeons, Western Surgical Association, the Minnesota Academy of Medicine, the American Medical Association, Minnesota State Medical Association and Hennepin County Medical Society. Besides his association with the Northwestern Hospital, he was also chief surgeon for many years at the Minneapolis General Hospital, and surgeon for the Minneapolis Street Railway and the Great Northern Railroad.

Dr. Schwyzer was characterized by his attention to discipline and his enthusiasm for his professional work.

He is survived by his wife, the former Agnes Jorgens, of Minneapolis, and one son, Werner, of Houston, Texas.

Martin Nordland, M.D.

The President appointed Dr. A. E. Benjamin to prepare a memorial to Dr. H. B. Sweetser, Sr., and Dr. Edward T. Evans to prepare a memorial to Dr. Vernon L. Hart, to be read at the next meeting.

The president reported that the Executive Committee had proposed the elevation of Dr. Wilder's name to the Honorary Membership list; Dr. Wilder is now in Washington, D. C. and has asked that he be placed on such membership list as is constitutionally possible. This proposal was carried.

The election of new members resulted in the naming of Dr. H. B. Sweetser, Jr., and Dr. Asher White as candidates for membership in the Academy. The Secretary is to notify them of their election.

The scientific program followed.

Dr. Thomas Lowry, of Minneapolis, read his Inaugural Thesis. Lantern slides and x-rays were shown.

THE QUESTION OF CARDIAC TRAUMA

THOMAS LOWRY, M.D.
Minneapolis, Minnesota

The subject of injury to the heart muscle is a large one. Clearly, every variety of cardiac disease "injures" the heart in one way or another. I am sure that most of us who deal with heart disease are accustomed to employ loosely the phrases "myocardial injury" and "myocardial damage" when referring to the effects of such widely different pathological processes and agents as the anoxia of coronary insufficiency, the effects of rheumatic infection, and the myocarditis produced by diphtheria toxin.

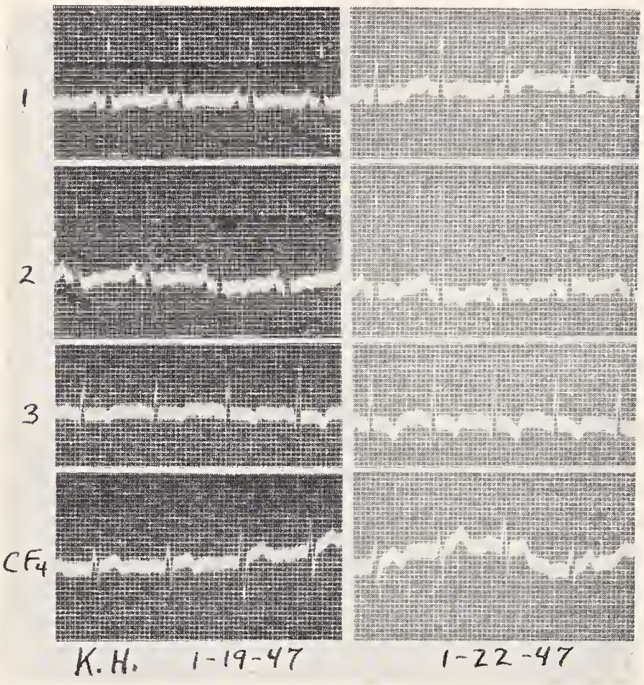

Fig. 1. K.H. 1-19-47 (four days after injury): T1 low and diphasic, T2 diphasic to negative, T3 negative, T4 low and tending to be diphasic. 1-22-47: T1 now more positive but T2 and T3 distinctly more negative.

The present discussion, however, will be limited to consideration of non-penetrating cardiac trauma resulting from physical violence. It is proposed, for the purpose of this paper, to omit the condition of so-called cardiac "over strain," which some authors have included as a type of trauma. It is manifestly impossible, under a given set of circumstances, to say when the strain on a heart becomes excessive, and in any case, damage which might be caused by such means would be in no way comparable to injury by physical violence.

My interest in the question of cardiac trauma was aroused by problems presented in the care of two patients whom I had the opportunity to study about four years ago, and whose case histories I should like to outline.

K. H., a twenty-five-year-old salesman, sustained a severe blow to his left posterior chest in an automobile accident January 15, 1947 and was first treated at the Minneapolis General Hospital. On January 18, 1947, he was transferred to Northwestern Hospital where he arrived in rather poor condition. The more important injuries were: fractures of the left scapula and of ribs three through ten on the left side. Hemopneumothorax was present on the left, and there was marked subcutaneous emphysema. Other findings on examination were: temperature 99, pulse 96, respirations 26, blood pressure 210/150. The patient had a pale gray cyanosis, was cold, sweating, and dyspneic, with shallow painful breathing. The heart sounds were somewhat distant and blurred, with a "tic-tac" quality. There was evidence of pneumothorax on the left; the right lung was clear except for a few scattered moist râles.

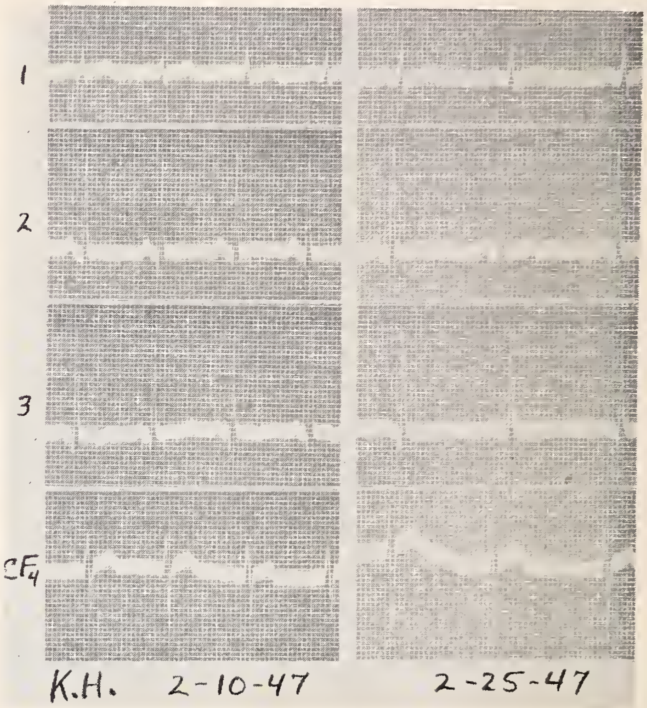

Fig. 2. K.H. 2-10-47 (about four weeks after injury and clinically much improved): T1 positive, T2 isoelectric, T3 negative but less so than in previous tracing. 2-25-47: T1 and T2 now positive and T3 isoelectric.

A few hours after admission, the patient's condition became alarming. He developed a steady boring precordial pain, radiating through to the back and associated with severe aching in the left shoulder and upper arm. The pain increased progressively in severity and did not respond to codeine, demerol or morphine. At the same time, dyspnea increased and the heart rate and respiratory rate rose; the blood pressure remained high. When this paroxysm of pain, which lasted 5 or 6 hours, was at its height, the temperature was 102.4°, the heart rate 136 with regular rhythm, the respiratory rate 60, and the blood pressure 200/120.

Combined use of morphine and oxygen finally controlled the pain and it was felt that the oxygen had more effect than the morphine. The following day a pericardial friction rub was heard.

The man had a stormy course with high fever, rapid heart rate, and fluctuating blood pressure, which eventually stabilized in the normal range. About ten days after admission, marked improvement took place and from that time on, his recovery was uneventful. He was considered to have a rather severe myocardial contusion and was kept in bed six weeks. His electrocardiograms appear in Figures 1, 2 and 3.

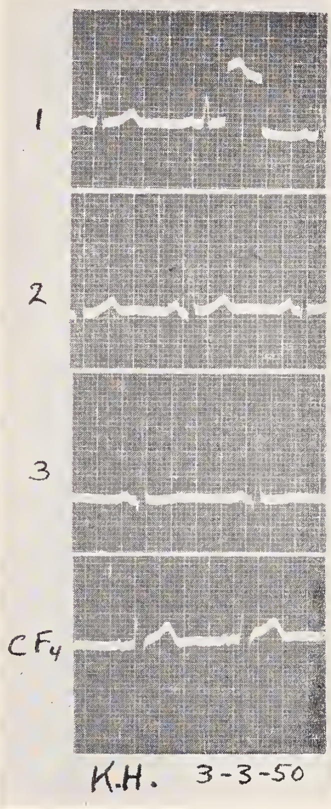

Fig. 3. K.H. 3-3-50 (three years after the injury): The electrocardiogram which became normal three months after the injury has shown essentially no changes since that time and still remains a normal tracing.

In this case, the chief abnormalities are in the T waves. The successive changes of pattern indicate the acute nature of this process. It is noteworthy that this electrocardiogram remained abnormal up to the time of the patient's discharge from the hospital. Later follow-up (Fig. 3) showed the return of a normal pattern.

G. R., a forty-nine-year-old steam fitter was admitted to Northwestern Hospital by transfer from another hospital two days after an automobile accident. In addition to a head injury and a compound fracture of the right leg, there were fractures of ribs 2 through 5 on the right and severe contusions of the thorax. The patient was in poor condition, with temperature 101.2°, pulse 90, blood pressure 170/120, respirations 24. A right hemopneumothorax was found, and subcutaneous emphysema was present. The heart size was normal, but the sounds were distant, with many extrasystoles. There was no friction rub and no murmur.

The electrocardiograms are of interest (Fig. 4). The first tracing, made February 1, 1947, soon after admission and 4 days after the injury, shows abnormal P waves especially in leads 2 and 3, suggesting auricular damage. There is also slurring of the QRS complexes and the T waves in leads 1, 2, and 3 are abnormal. The second tracing was made February 11, ten days after the first and indicates a rapid change in the direction of normal. Unfortunately, the patient died suddenly on February 17 of a large pulmonary embolus.

At autopsy the pericardial sac was obliterated by "moderately firm fibrinous and fibrous adhesions." The heart weighed 425 grams, and moderate dilatation of the right atrium and right ventricle were considered secondary to extensive thrombosis in the pulmonary arterial tree.

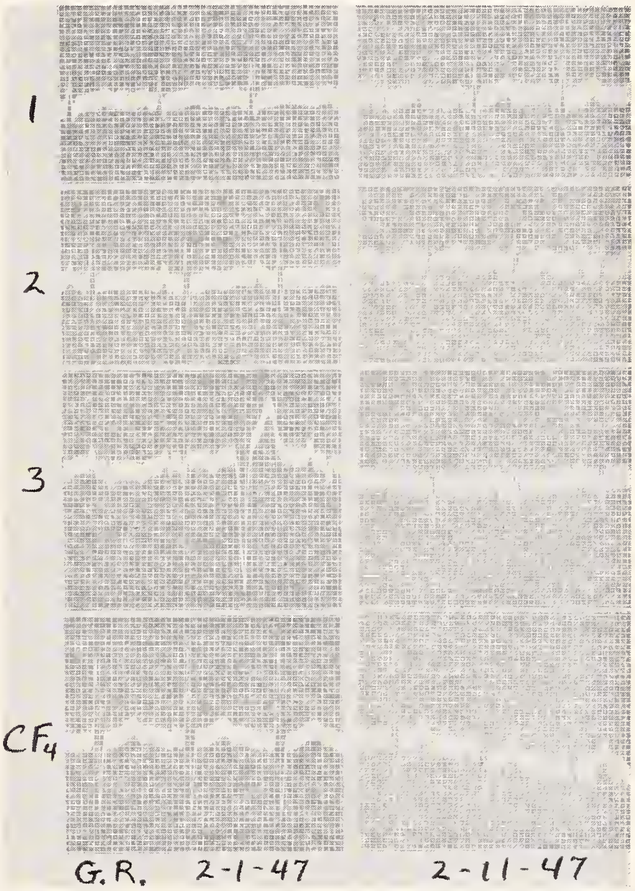

Fig. 4. G.R. 2-1-47 (four days after injury): P2 high and peaked. P3 diphasic. T1 low, T2 low and diphasic, T3 negative. A ventricular extrasystole is seen in lead three. 2-11-47 (Two weeks after injury): The pattern is returning toward normal with T1 positive, T2 positive, T3 much less negative; the abnormalities of the P waves are less striking.

Microscopically the heart showed "inflammatory reaction in the epicardium; some increased vascularity and edema in the heart muscle."

This patient had survived his cardiac injury and was apparently making a good recovery when his pulmonary embolism occurred. The autopsy indicated that the heart had been damaged, superficially at least, but there was no evidence to suggest that this man's death was related to his cardiac injury or that *he would necessarily have had any cardiac disability, had he survived.*

As we consider this subject of cardiac trauma, a number of questions arise concerning its various phases. The remainder of this discussion is an effort to find answers to the more important of those questions. In this quest I have reviewed the more recent pertinent literature and have also studied the case records of patients admitted to the Minneapolis General Hospital because of thoracic injuries.

In the first place then, what are the effects of injury upon cardiac structure and function? The general types of injury to the heart can be put in three categories:

1. Direct or contre-coup blow, resulting in surface contusion.
2. Compression between sternum and vertebral bodies in a crushing injury, often resulting in endocardial tears.
3. Violent strain upon the attachments of the heart as a result of rapid deceleration in "high speed accidents," resulting in ecchymosis of the auricles near the orifices of the great veins.

The known effects of trauma upon the heart can also be listed rather briefly. They are:

1. Pericardial laceration or contusion
2. Extrasystoles
3. Auricular fibrillation
4. Partial or complete heart block
5. Damage to the myocardium shown by electrocardiographic changes only.
6. Injury to the mitral or aortic valve, leading abruptly to cardiac failure.
7. Immediate cardiac rupture, with sudden death.

These, then, are the types of injury encountered, and their usual cardiac effects. Next we may well ask how often the heart sustains an injury which is clinically detectable. On this point, evidence from the literature becomes rather confusing.

In the first place, most of the papers reporting series of cardiac injuries are clearly attempting to report a *large* number of cardiac injuries, and the minute electrocardiographic changes which are shown as evidence to prove such lesions are in many instances entirely unacceptable. Other reports are based upon findings in patients first examined many weeks or months after their alleged injuries, and in these, conclusions as to causation of symptoms and signs by remote trauma seem quite unwarranted.

However, Barber in 1944 reported on seventy-five patients who, after thoracic injuries, had routine electrocardiograms. Of these, twenty (26 per cent) showed some slight but definite abnormalities within forty-eight hours of the accident. Two of the patients died—of their other injuries. One of these was found to have bruising of the right auricle. The other, who died of pneumonia, showed no evidence of a cardiac lesion at autopsy; this death occurred 12 days after an electrocardiogram had shown distinct abnormality, presumably allowing time for healing of a bruise or other minor lesion of the heart muscle. From the small number of careful and unbiased reports, one gains the impression that around 25 to 40 per cent of patients suffering chest injuries can be shown to have electrocardiographic abnormalities which undergo rapid changes and soon revert to normal. Such evidence strongly suggests that myocardial trauma occurs rather frequently in cases of chest injury but is almost invariably slight and quick to heal—except in those individuals who succumb within a few hours after an injury.

Corroborative information is gained from the files of the Minneapolis General Hospital, where, since the first part of 1950, an attempt has been made to secure electrocardiograms routinely in all cases of injury to the thorax.

About fifty recent case records were examined, of which only fifteen were found to contain sufficient electrocardiographic data to be suitable for analysis. For a diagnosis of cardiac injury, it was required that there should be definite evidence of myocardial damage found by electrocardiogram within forty-eight hours after the injury, and that the findings should change distinctly within the subsequent week, confirming the acute nature of the process. Three patients between the ages of fifty-five and seventy were considered to have minor electrocardiographic abnormalities due to hypertensive or arteriosclerotic heart disease, rather than to their injuries.

Five of the fifteen cases (33 per cent) had acceptable evidence of myocardial injury. Of these, three showed changes limited to the ST segments and T waves. One developed, in addition, widening of the QRS complex. The fifth had first degree heart block and transient bigeminal rhythm, with many ventricular extrasystoles.

Of these five patients, three died, and autopsies showed the causes of death to be unrelated to the cardiac injury (one head injury, one gastric hemorrhage, one retroperitoneal hemorrhage). In one of the fatal cases, myocardial bruising could be demonstrated at necropsy. The other two had no pathologic evidence of heart damage, and in both these patients the electrocardiogram had returned to normal before death.

These results, drawn from a very small number of cases, are in agreement with previously reported figures. They confirm the impression that demonstrable cardiac damage occurs in about one-third of patients sustaining injuries to the thorax which require hospitalization.

What then are the symptoms, physical signs, and electrocardiographic changes which point to a diagnosis of cardiac contusion? The most important ones are as follows:

SYMPTOMS

1. Precordial pain, often with characteristic cardiac radiation to the jaw, left arm, back, etc. In some cases there is also pain on swallowing.
2. Dyspnea and orthopnea.
3. Cyanosis.
4. Evidences of shock: gray pallor, sweating, weakness, restlessness, etc.

PHYSICAL SIGNS

1. Cardiac arrhythmias of all sorts.
2. Fluctuations of blood pressure. These may be either upward or downward.
3. Increase in the area of cardiac dullness, (suggesting pericardial effusion or myocardial dilatation).
4. Paradoxical pulse.
5. Abnormal heart sounds.
6. Pericardial friction rub.
7. Cardiac murmurs, if they appear suddenly or change abruptly.
8. Signs of cardiac failure, such as pulmonary edema or hepatic passive congestion.

The usual electrocardiographic abnormalities encountered are these:

1. Extrasystoles (common).
2. Auricular fibrillation.
3. Auricular flutter and other disorders of rhythm (rare).
4. Abnormal P waves.
5. Changes in the QRS complex.
6. Abnormalities of the ST segment and T wave.

In order to ascribe any of these alterations in the electrocardiogram to recent cardiac injury, one must be able to demonstrate definite, and fairly rapid *changes* of the pattern occurring under observation.

Once detected, what is the proper course of treatment to adopt for myocardial injury? On this point, there can be little argument. It seems entirely logical to treat myocardial trauma in the same general manner as myocardial infarction. All who express any opinion on the subject agree with this point of view. It is probably true that such a policy will in many cases be unnecessarily conservative, but where we are dealing with a definite cardiac lesion, we can afford to be conservative.

Thus, the mild injury, which shows itself only through transient abnormality in the electrocardiogram, should be cause for keeping a patient in bed three or four weeks. More severe lesions indicate more prolonged treatment. Clearly, if complications such as arrhythmia or congestive heart failure supervene, appropriate therapy, with digitalis, quinidine, oxygen, diuretics, etc., should be employed just as if the same events had occurred in the course of a myocardial infarction.

The prognosis of cardiac injuries, as has already been suggested, is generally good. If the victim survives the immediate effects of the injury, he is not apt to die because of his cardiac damage. There are, of course, exceptions to this statement. In a small number of cases, cardiac failure develops after an interval of two days or more following the injury. This may prove intractable and lead to a fatal outcome. Then there is the rather rare accident of delayed cardiac rupture. This event, usually occurring during the second week after injury, has been found to follow an endocardial tear which extends outward into the myocardium, and therefore fails to heal like an ordinary surface contusion.

Granted that those who survive the immediate effects of an injury to the heart are unlikely to *succumb* after an interval, what of disability and symptoms related to the heart in these individuals? Having gone through much of the available published opinion, and tried to weigh the evidence, I have reached the conclusion that disability resulting from cardiac trauma, though it does occur, is a rarity. The literature contains almost no examples in which the evidence is acceptable. Some patients may have twinges of precordial pain from time to time, which can be presumed to arise from pericardial or pleuropericardial adhesions. This symptom is annoying but not disabling, and it is not of serious prognostic import.

It is interesting to note that several authors have published papers which purport to prove the occurrence of cardiac symptoms resulting from trauma. In at least one such communication, the outcome of the litigation (generally an award of compensation) is appended to each case report. Careful analysis of such records reveals, in most of them, a surprising lack of adequate evidence in support of the conclusions which are drawn. For the most part, these case reports describe symptoms such as angina pectoris or mild cardiac failure, which the patient is able to date from a blow on the chest. In many published instances, cardiac examination has been first done two months or more after the alleged injury. The fallacy of such reasoning is too obvious to require further comment.

It goes without saying that the prognosis and management of any given case must be decided on its own merits and not according to any rule, but it is cheering to know that virtually none of these patients develop any serious symptoms or disability, once the immediate post-traumatic period is safely past.

This knowledge leads to one other conclusion which, in closing, I should like to emphasize. Though remaining on the alert for cardiac contusions in individuals who have sustained chest injuries, one must scrupulously avoid giving these patients cause for unnecessary worry. In a severe blow on the chest there is excellent building material for a disabling cardiac neurosis. The physician must be, if anything, more careful to avoid scaring his patient than he is to avoid overlooking a minor myocardial injury.

Summary

1. The subject of non-penetrating injuries to the heart has been reviewed, and illustrative case material has been presented.

2. Mild cardiac injuries are probably relatively frequent.

3. Efforts should be made to detect myocardial damage in individuals suffering thoracic trauma; and patients sustaining such damage should be conservatively treated.

4. The prognosis of mild myocardial injury is good; overemphasis on the seriousness of the condition may cause patients unnecessary alarm and lead not only to neuroses, but to unwarranted compensation claims.

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DISCUSSION

Dr. Carl B. Drake, Saint Paul: I am reminded of a patient who was admitted to the Ancker Hospital in the 1920's. This man in his thirties had been leading a heifer by means of a rope in the stock yards in South Saint Paul. The heifer became obstreperous and a twist was taken on a post of a gate. The heifer reared and the gate flew open and struck the man a severe blow on the chest. He was knocked down and pretty well out but had enough strength to drag himself through the gate and out of harm's way. After a brief period of time he was able to walk to the office of the company doctor but instead of waiting he went home. The following day he was admitted to the Ancker Hospital. His heart was not enlarged but it was fibrillating. The one blood pressure reading recorded was something like 140 systolic. There was no decompensation. The fibrillation resisted quinidine administration and he left the hospital after a few months. An electrocardiogram taken at the Miller Hospital confirmed the presence of a fibrillation. A few months later this man returned to the Ancker Hospital with marked enlargement of the heart and severe decompensation. The heart was still fibrillating. He died a short time later.

The question arose as to whether the heart had sustained an injury from the severe blow on the chest and whether the fibrillation was due to the blow. Workman's compensation was involved.

At autopsy, no evidence of heart injury was found but the heart was markedly enlarged. Hypertension was reported as the cause of death although there was no history of hypertension. The microscopic kidney findings I do not recollect, but presume they showed evidence of hypertension.

Before the Workman's Compensation Court, I testified that in my opinion the fibrillation was due to a heart injury from the severe blow. I quoted Lewis who had made the statement in his book that fibrillation can result in cardiac hypertrophy. The man had been examined, upon being employed, a few months before and presumably did not have hypertension at that time. I reasoned that the blow had instituted the chain of events that resulted in his death but must admit that I was indulging in *post hoc propter hoc* reasoning. I was alone in my testimony that the blow had produced an injury to the heart, and the court's decision in favor of the plaintiff's widow may have been simply granting her the benefit of a doubt.

About this same time, Dr. E. L. Touhy, of Duluth, published in Minnesota Medicine reports of two cases of myocardial injury due to blows.

Dr. John F. Noble, Saint Paul: I came here this evening to listen to this thesis with a good deal of trepidation for I have listened to so much irrational, if not dishonest, medical-legal testimony on the subject that I was afraid I might be in total disagreement with the essayist. I find that I am in complete accord with Dr. Lowry's opinions on the subject. There is no question, as illustrated by the cases reported by Dr. Lowry, that trauma can cause acute and often fatal damage to the heart; but I feel very strongly that trauma is seldom, if ever, a cause of chronic heart disease.

Dr. Thomas A. Peppard, Minneapolis: I was impressed by one of Dr. Lowry's conclusions, i.e., the one relating to the attitude of the medical attendant. The situation in these cases of cardiac injury is quite similar to that in coronary thrombosis. The physician may induce or aggravate the anxiety of the patient, and set the stage for the "post thrombotic syndrome" (iatrogenic heart disease). The patient is often so terrified that he is just as miserable from his neurosis as he was from his acute myocardial infarction.

Dr. S. R. Maxeiner, Minneapolis: I would like to call attention to an act of the Minnesota Legislature passed a few years ago which very greatly liberalizes the attitude toward compensation. We have had experience with several patients who had abnormal hearts, who sustained an aggravation by lifting while on duty. In several instances, they have been awarded compensation on the basis of an aggravation of a previously existing condition. It became necessary to retire one employe with cardiac disease whose condition became aggravated while on duty. In this state, the aggravation feature becomes extremely comprehensive and often constitutes a death claim.

Dr. Lowry, in closing: I have nothing further to add. I would like to thank all the discussors for their contributions. I was interested in what Dr. Fahr had to say about litigation. In looking over the literature, I found that in several case reports the results of the litigation were included as part of the medical record.

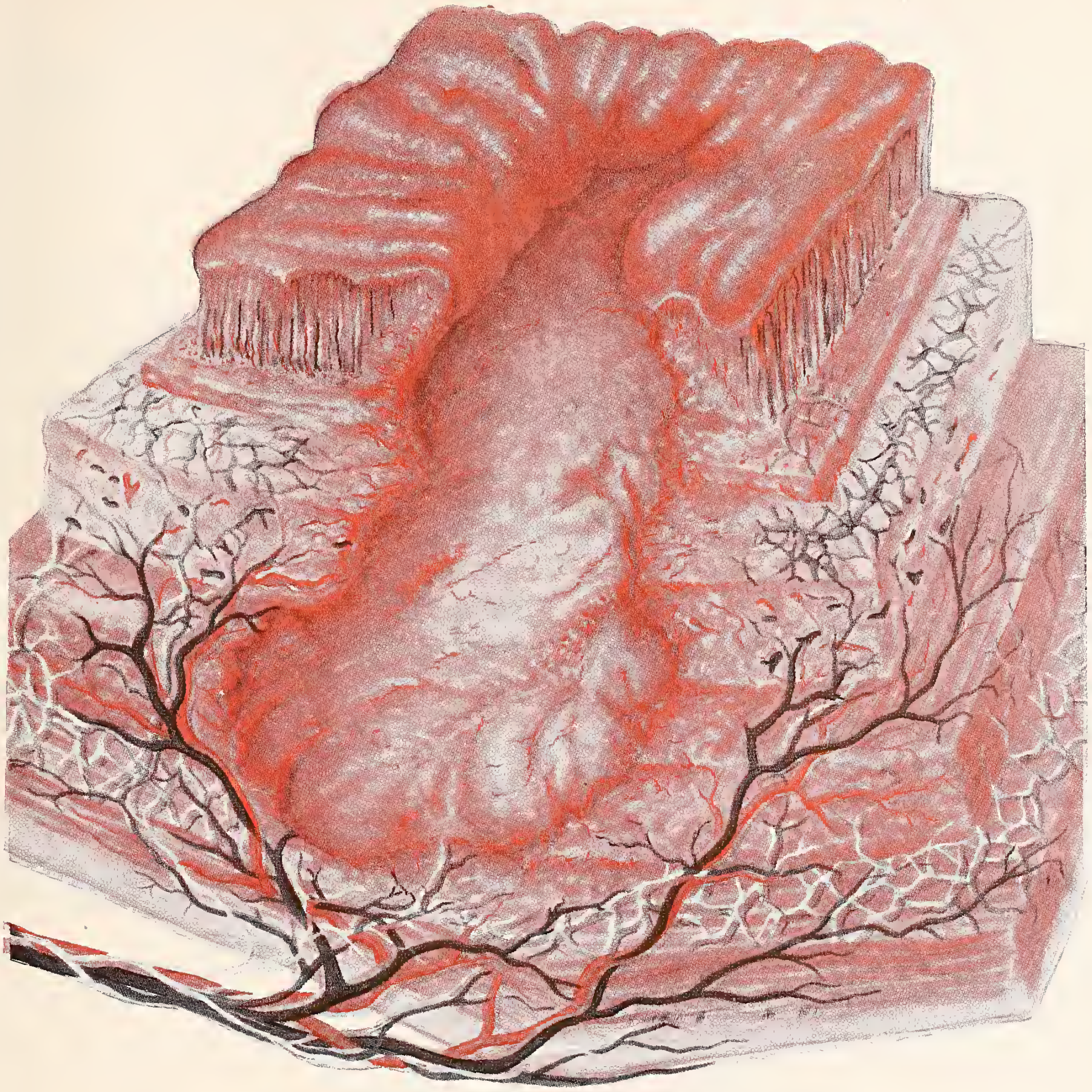
The meeting was adjourned.

Wallace P. Ritchie, M.D., *Secretary*

Despite all the problems inherent in the situation, past and present, there has been measurable progress in the control of tuberculosis among Indians. The most noticeable and important advance has been in the active participation of the Indians themselves through the medium of tribal health councils and tribal councils in developing community consciousness of the cause and control of tuberculosis. Many of the tribes have passed ordinances governing tuberculous individuals and their movements in the environment of the reservation including appropriate penalties for nonobservance. Information has been spread to the Indians largely through the tribal councils and, were it not for the participation of these governing bodies, no effective disease control programs could develop.—H. DeLien, M.D., and Arthur W. Dahlstrom, M.D., *American Journal of Public Health,* May, 1951.

* * *

Few diseases have shown the continuous, yearly decline in mortality exhibited by tuberculosis. Mortality from tuberculosis continued to decline in 1949, when 39,000 deaths from all forms of the disease occurred in continental United States. The death rate is estimated to be 26.2 per 100,000 population, excluding the armed forces overseas.—Evelyn H. Halpin and Otis D. Turner, *Public Health Reports,* May 4, 1951.



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SEARLE RESEARCH IN THE SERVICE OF MEDICINE

✦ Reports and Announcements ✦

AMA CLINICAL SESSION

The 1951 Clinical Session of the American Medical Association will be held in Los Angeles December 4 to 7, inclusive. It is being designed primarily for the general practioner, and therapy will be stressed. Subjects of interest to the specialist, however, will not be forgotten.

The four-day scientific program will include discussions and presentations on urology; general practice; general surgery; cardiovascular diseases; industrial medicine and surgery; eye, ear, nose and throat diseases; diseases of the chest, and neuropsychiatry.

Color television will again be utilized to demonstrate surgery, clinical treatment and examination procedure. Scientific exhibits will cover a wide field.

The scientific and technical exhibits will be located in the Shrine Convention Hall, adjacent to the Al Malaikah Temple where the lectures will be given.

Physicians are urged to make hotel reservations in advance by writing to Chairman, AMA Subcommittee on Hotels, 1151 South Broadway, Los Angeles 15, Calif.

COMMONWEALTH AND EMPIRE HEALTH AND TUBERCULOSIS CONFERENCE

The National Association for the Prevention of Tuberculosis, England, has announced that the third Commonwealth and Empire Health and Tuberculosis Conference will be held in London, July 8 through 13, 1952. Lectures and discussions will be given at Central Hall, London, on July 8 through 11, with visits to sanatoriums, hospitals and clinics on July 11 through 13.

Further information can be obtained from the Secretary-General, National Association for the Prevention of Tuberculosis, Tavistock House North, Tavistock Square, London, W.C.I, England.

OMAHA MID-WEST CLINICAL SOCIETY

The nineteenth annual assembly of the Omaha Midwest Clinical Society will be held at the Hotel Paxton, Omaha, Nebraska, from October 29 through November 2.

The meeting will be addressed by national authorities on a wide variety of subjects of special interest to general practitioners as well as specialists. Clinics, round-table discussions and question-and-answer periods will also be utilized in giving variety to the meeting.

The assembly was the first to receive Class A rating by the American Academy of General Practice for postgraduate study credit.

Further information may be obtained by writing to the Executive Office of the society, 1031 Medical Arts Building, Omaha 2, Nebraska.

VAN METER PRIZE AWARD

The American Goiter Association again offers the Van Meter Prize Award of $300 and two honorable mentions for the best essays submitted concerning original work on problems related to the thyroid gland. The award will be made at the annual meeting of the association which will be held in Saint Louis, Missouri, May 1, 2 and 3, 1952, providing essays of sufficient merit are presented in competition.

The competing essays may cover either clinical or research investigations; should not exceed three thousand words in length; must be presented in English; and a typewritten double-spaced copy in duplicate sent to the corresponding secretary, Dr. George C. Shivers, 100 East Saint Vrain Street, Colorado Springs, Colorado, not later than March 1, 1952. The committee, who will review the manuscripts, is composed of men well qualified to judge the merits of the competing essays.

A place will be reserved on the program of the annual meeting for the presentation of the prize award essay by the author, if it is possible for him to attend. The essay will be published in the annual *Proceedings* of the association.

CONTINUATION COURSES

Chest Diseases.—The University of Minnesota, together with the Minnesota Public Health Association, will present a continuation course in chest diseases to be directed to the lay people particularly interested in this field. The course will be held at the Center for Continuation Study on the campus of the University of Minnesota from October 22 to 24. The course will emphasize public health aspects of tuberculosis and other chest diseases.

Child Psychiatry.—The University of Minnesota will present a continuation course in child psychiatry for general physicians and pediatricians November 26 to December 1. Dr. Reginald S. Lourie, director of the Department of Psychiatry, Children's Hospital, Washington, D. C., and Dr. J. Franklin Robinson, director of the Children's Service Center of Wyoming Valley, Wilkes-Barre, Pennsylvania, will be the visiting faculty members for the course. Dr. Reynold A. Jensen, associate professor, Departments of Psychiatry and Pediatrics, University of Minnesota, is chairman for the course.

MINNESOTA HEART ASSOCIATION

First grant of funds by the Minnesota Heart Association for research has proved effective.

Finances for detailed study of heart conditions were given a year ago to the University of Minnesota medical department for use in 1950-51.

Gratifying results "beyond original expectations" have been reported by the executive committee of the Heart Association. Their conclusions were based on reports made by each researcher at the end of his year's study.

From these reports the executive group made the statement that "the future appears still more promising from the viewpoint of scientific productivity."

"Part of the funds received from the Minnesota Heart

The Stability . . .

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One characteristic usually associated with a bond is that it has an established rate of interest; the investor therefore can compute the annual income he may expect from the date of purchase to the date of final maturity. A bond, like a note or mortgage, is a promise to pay a stipulated amount at a designated future date with interest to accrue in the meantime. This provides STABILITY OF INCOME—once a sound investment is made the annual income is fixed and is not altered by changing economic conditions or market fluctuations.

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Association have been used for equipping and staffing the laboratories designed for the investigation of various aspects of the rheumatic fever problem at the Heart hospital," one of the research reports pointed out.

Confirmation of the practical and effective use of last year's grant was given in a letter from Dr. Harold S. Diehl, dean of medical sciences at the University, to the Heart Association.

"The support received from the Minnesota Heart Association has been invaluable," he wrote.

A grant of $25,000 was made to the University for 1950-51. That sum was then distributed by an allocations committee of the medical department to members of the faculty to finance research in various fields of heart disease.

These grants by the Heart Association are financed from the subscriptions made in February each year to the Minnesota Heart Fund by individuals and organizations interested in the medical profession's daily fight against the nation's No. 1 killer, heart disease.

"This report by the executive committee is intended to inform the public how their money is being spent in the fields of research at the University of Minnesota," said Dr. Frank J. Hirschboeck of Duluth, president of the Heart Association.

The complete executive committee report follows:

"During the past year the Minnesota Heart Association has provided the major financial support for ten important cardiovascular research projects carried out by members of the University of Minnesota faculty. A wide range of problems has been covered. Some of the studies have already produced definitive results justifying reports in the standard medical journals. Others have been of preliminary character, but have paved the way for more intensive investigations in the future.

"One of the latter group has dealt with the nature of the physiological adaptive mechanism which makes it possible for the child with severe cyanotic heart disease to withstand extremely high degrees of oxygen unsaturation of the arterial blood. Preliminary studies suggested the possibility that the hemoglobin of such patients may be of the fetal type, but conclusive data are yet to be obtained. The red blood cells were found to be more fragile than normal in the cyanotic child.

"Lesions in the heart simulating the clinical type of mitral stenosis were produced experimentally in dogs. Atrial and pulmonary vein hypertension resulted. This hypertension was reduced by shunting the blood from one atrium to the other by surgical means.

"Studies of the bacteriology of endocarditis and endarteritis previously shown to follow surgical production of extensive arteriovenous anastomoses were continued.

"The rheumatic fever problem was approached from various viewpoints. One indicated that the C-reactive protein occurs regularly in the serum of patients with rheumatic fever in an active phase, even when the sedimentation rate and other signs are equivocal. Its absence tends to rule out rheumatic fever in favor of other disorders. Unlike the increase in hyaluronidase inhibitor level, C-reactive protein did not appear to represent a response to the alarm reaction, according to results of this study.

"In studies on the effects of cortisone and adrenocorticotropic hormone in animals treated in various ways, it was found that the intravenous injection of endotoxin from gram-negative bacteria in cortisone-treated rabbits results in bilateral cortical necrosis of the kidneys, while intradermal injection of toxin in treated rabbits causes local hemorrhage in the skin site. Cortical necrosis could not be produced in this manner in animals pretreated with nitrogen mustard. While cortisone was shown to favor the development of extensive infections with Group A hemolytic streptococci in normal rabbits, it had no enhancing effect upon such infection in animals which had been immunized, indicating that the hormone does not block the mechanism of immunity but interferes with the little known mechanism of natural immunity. Such immunized animals were found to be capable still of developing extensive myocardial inflammatory lesions during cortisone treatment.

"A serological study in families of rheumatic fever patients has been initiated to determine if there might not be alterations in certain blood constituents indicative of rheumatic fever susceptibility. For example, such factors as mucoprotein and hyaluronidase inhibitor in the blood and 17-ketosteroids in the urine are being investigated. Follow-up studies of rheumatic fever patients showed the hyaluronidase inhibitor values in the serum to be low.

"In a comparative study on the body fluid space changes in normal and hypertensive subjects, it was found that the fluid compartments were normal in the latter. The decrease in blood pressure induced by excessive sweating or salt-restriction regimens appears from these results not to be due solely to changes in body fluid content.

"An investigation of the effects on cardiac function of breathing atmospheres high in CO_2 content revealed that heart muscle can tolerate high degrees of acidity surprisingly well. No electrocardiographic abnormalities were produced when the alveolar CO_2 was increased to high levels or when again reduced to normal levels gradually over a period of thirty minutes. When it was reduced too suddenly, however, ventricular fibrillation ensued with lethal termination in the majority of animals tested.

"The metabolism of heart muscle was studied in one project by use of isotopic carbon (C_{13}) incorporated into molecules of various organic acids. It was found that the labeled carbon from lactic, acetic and proprionic acids appeared in the respiratory CO_2 but not in cardiac glycogen. Succinic acid was not metabolized by the isolated heart.

"Preliminary studies to evaluate the usefulness of the new technique of electrocardiovectography have been carried out under a variety of conditions. The groundwork of standardizing techniques for normal subjects and for patients with such disorders as pulmonary emphysema and mitral valvular disease has been carried out and new apparatus has been devised for use in future work.

"Altogether, results of the first year of research, made possible by financial aid from the Minnesota Heart Association, have been gratifying beyond original expectations. Judging from preliminary reports recently rendered by recipients of the association's grants, the future appears still more promising from the viewpoint of scientific productivity."

UNIVERSITY OF MINNESOTA

Presents

A Symposium on Rheumatic Fever
Sponsored by the Minnesota Heart Association
November 29-December 1, 1951

PROGRAM

Thursday, November 29

Morning Session:

Greetings—Dean Harold S. Diehl, University of Minnesota Medical School.

Introductory statement on purpose and scope—Dr. Irvine McQuarrie, University of Minnesota Medical School.

Chairman: Dr. Irvine McQuarrie

The Natural History of Rheumatic Fever—Dr. T. Duckett Jones, The Helen Hay Whitney Foundation, New York, N. Y.

The Epidemiology of Rheumatic Fever—Dr. F. S. Schwentker, The Johns Hopkins Medical School.

The Pathology of Rheumatic Fever—Dr. George Murphy, Rockefeller Institute, New York.

Non-Rheumatic Myocarditis—Dr. Horace Hodes, Mount Sinai Hospital, New York.

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Afternoon Session:
Chairman: Dr. Lewis Thomas

Infection and Re-infection with Hemolytic Streptococci in Early Childhood — Dr. Lowell T. Rantz, Stanford University Hospitals, San Francisco, California.

Epidemiological Studies in the Armed Forces—Dr. Charles Rammelkamp, Western Reserve University, Cleveland, Ohio.

Immune Reactions in Rheumatic Fever—Dr. Maclyn McCarty, Hospital of the Rockefeller Institute, New York, N. Y.

Rheumatic and Other Inflammatory Complications of Congenital Heart Disease—Dr. Thomas J. Dry, Mayo Clinic, Rochester, Minnesota.

Subacute Bacterial Endocarditis—Drs. Wallace E. Herrell and Fordyce R. Heilman, Mayo Clinic, Rochester, Minnesota.

Friday, November 30

Morning Session:
Chairman: Dr. Jerome T. Syverton

The Biology of the Hemolytic Streptococcus — Dr. Maclyn McCarty, Hospital of the Rockefeller Institute, New York, N. Y.

Tissue Factors in Streptococcal Infection—Drs. Dennis Watson, and William Cromartie, University of Minnesota Medical School.

Review of Attempts to Induce Rheumatic-like Disease in Experimental Animals — Dr. George Murphy, Rockefeller Institute for Medical Research, New York, N. Y.

Streptococcal Infection and Cortisone — Dr. Lewis Thomas, University of Minnesota Medical School.

Experimental Bacterial Endocarditis—Dr. C. Walton Lillehei, University of Minnesota Medical School.

Afternoon Session:
Chairman: Dr. Wesley Spink

"Acute phase" Serological Reactions in Rheumatic Fever—Dr. R. A. Good, University of Minnesota Medical School

The Biochemistry of Connective Tissue in Rheumatic Fever—Dr. Albert Dorfman, University of Chicago, Chicago, Illinois.

The Penetration of Antigens into Connective Tissue—Dr. Albert H. Coons, Harvard Medical School, Boston, Massachusetts.

Pathogenesis of Arthus and Shwartzman Reactions—Dr. C. A. Stetson, Streptococcal Disease Laboratory, Warren Air Force Base, Cheyenne, Wyoming.

The Shwartzman Reaction Involving the Heart—Dr. Lewis Thomas, University of Minnesota Medical School.

Evening:
Panel Discussion of Pathogenesis of Rheumatic Fever
Chairman: Dr. Alvin Coburn
Participants: Drs. McCarty, Dorfman, Jones, Kutt-

ner, Murphy, Thomas, Rammelkamp, and Syverton.

Saturday, December 1

Chairman: Dr. Thomas J. Dry

Surgical Treatment of Rheumatic Heart Disease—Dr. R. Varco, University of Minnesota Medical School.

Treatment of Rheumatic Fever with ACTH and Cortisone—Dr. A. Barnes, University of Minnesota Medical School.

Recent Developments in the Therapy of Rheumatic Fever—Dr. Ann Kuttner, Bellevue Hospital, New York City.

The Prevention of Rheumatic Fever—Dr. Charles Rammelkamp, Western Reserve University, Cleveland, Ohio.

General Management of Rheumatic Fever—Dr. Morse Shapiro, Los Angeles, California.

There will be no tuition fee for attendance at the Symposium.

The following will take part in the Symposium:

Dr. Arlie Barnes, University of Minnesota Medical School
Dr. William Cromartie, University of Minnesota Medical School
Dr. Albert H. Coons, Harvard Medical School, Boston, Massachusetts
Dr. Alvin Coburn, Northwestern University, Chicago, Ill.
Dean Harold S. Diehl, University of Minnesota Medical School
Dr. Albert Dorfman, Bobs Roberts Memorial Hospital for Children, Chicago, Ill.
Dr. Thomas J. Dry, Mayo Clinic, Rochester, Minnesota
Dr. Robert A. Good, University of Minnesota Medical School
Dr. Fordyce R. Heilman, Mayo Clinic, Rochester, Minnesota
Dr. Wallace E. Herrill, Mayo Clinic, Rochester, Minnesota
Dr. Horace Hodes, Mount Sinai Hospital, New York
Dr. T. Duckett Jones, The Helen Hay Whitney Foundation, New York City
Dr. Ann Kuttner, Bellevue Hospital, New York City
Dr. C. Walton Lillehei, University of Minnesota Medical School
Dr. Maclyn McCarty, Hospital of the Rockefeller Institute, New York
Dr. Irvine McQuarrie, University of Minnesota Medical School
Dr. George Murphy, Rockefeller Institute, New York
Dr. Charles Rammelkamp, Western Reserve University, Cleveland, Ohio
Dr. Lowell T. Rantz, Stanford University Hospitals, San Francisco, California
Dr. Francis Schwentker, The Johns Hopkins Hospital, New York
Dr. Morse Shapiro, Los Angeles, California
Dr. Wesley Spink, University of Minnesota Medical School
Dr. C. A. Stetson, Warren Air Force Base, Cheyenne, Wyoming
Dr. Jerome T. Syverton, University of Minnesota Medical School
Dr. Lewis Thomas, University of Minnesota Medical School
Dr. Richard Varco, University of Minnesota Medical School
Dr. Dennis Watson, University of Minnesota Medical School

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Surgical Technic, Surgical Anatomy and Clinical Surgery, four weeks, starting October 8, November 5.
Surgical Anatomy and Clinical Surgery, two weeks, starting October 22, November 19.
Surgery of Colon and Rectum, one week, starting October 15, November 26.
Esophageal Surgery, one week, starting October 15.
Thoracic Surgery, one week, starting October 8.
Gallbladder Surgery, ten hours, starting October 22.
Fractures and Traumatic Surgery, two weeks, starting October 8.
GYNECOLOGY—Intensive Course, two weeks, starting October 22.
Vaginal Approach to Pelvic Surgery, one week, starting November 5.
OBSTETRICS—Intensive Course, two weeks, starting November 5.
MEDICINE—Gastroenterology, two weeks, starting October 15.
Electrocardiography and Heart Disease, two weeks, starting October 22.
DERMATOLOGY—Intensive Course, two weeks, starting October 15.
UROLOGY—Intensive Course, two weeks, starting October 8.
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NORTHERN MINNESOTA MEDICAL ASSOCIATION

At the annual meeting of the Northern Minnesota Medical Association at Virginia on August 24 and 25 the following officers were elected: Dr. G. A. Sather, Fosston, president; Dr. W. S. Neff, Virginia, vice president; Dr. C. L. Oppegaard, Crookston, secretary-treasurer.

Crookston was selected as the site for the 1952 meeting.

SOUTHERN MINNESOTA MEDICAL ASSOCIATION

At the annual meeting of the Southern Minnesota Medical Association at Rochester on September 10, Dr. W. A. Merritt, Rochester, was elected president of the organization. Also elected to office were Dr. H. J. Nilson, Mankato, first vice president; Dr. W. C. Bernstein, Saint Paul, second vice president, and Dr. C. F. Stroebel, Jr., Rochester, secretary-treasurer.

More than 125 physicians attended the one-day meeting.

When the conviction that tuberculosis is an exquisite infectious disease has become firmly established among physicians, the question of an adequate campaign against tuberculosis will certainly come under discussion and it will develop by itself.—From *The Aetiology of Tuberculosis* by Dr. Robert Koch, 1882. Translated by Berna Pinner and Max Pinner.

Woman's Auxiliary

CHAIRMAN ANNOUNCES "LEGISLATION CORNER"

Mrs. Herbert F. R. Plass

The state board of the Woman's Auxiliary to the Minnesota State Medical Association hopes members are pleased with the legislative card enclosed in the September *Newsletter.* Please keep it in a convenient spot and use it often. Show it, when possible, to friends and members of other club groups. Friends and acquaintances can help keep Congressmen aware that the Auxiliary is an alert and interested voting public.

The issue of socialized medicine is still alive. Perhaps members no longer hear about a compulsory health insurance, but if one watches, he will see that there is a continuous flow of bills being introduced to Congress to provide "free" medical care to more and more people. Throughout the year it will be the purpose of this "corner" to keep members informed of pending legislation, and what stand the American Medical Association has taken. From time to time, help will be needed in writing to Representatives and Senators. Auxiliary members should keep their eyes on this "corner," so that they will be advised promptly of bills that need their action.

WOMAN'S AUXILIARY HISTORY

Mrs. E. M. Hammes, Sr.

(Continued from September issue)

Members serving in the capacity of president following Mrs. H. B. Sweetser and Mrs. Harry P. Ritchie were:

Mrs. Fred Adair, Minneapolis	1925-26
Mrs. J. T. Christison, St. Paul	1926-28
Mrs. B. F. Davis, Duluth	1928-29
Mrs. John D. Lyon, Minneapolis	1929-30
Mrs. S. S. Hesselgrave, St. Paul	1930-31
Mrs. James Blake, Hopkins	1931-32
Mrs. Edward Schons, St. Paul	1932-33
Mrs. Adolph Passer, Olivia	1933-34
Mrs. M. Nordland, Minneapolis	1934-35
Mrs. F. J. Elias, Duluth	1935-36
Mrs. E. M. Hammes, St. Paul	1936-37
Mrs. J. F. Norman, Crookston	1937-38
Mrs. W. B. Roberts, Minneapolis	1938-39
Mrs. A. C. Baker, Fergus Falls	1939-40
Mrs. M. A. Nicholson, Duluth	1940-41
Mrs. J. J. Ryan, St. Paul	1941-42
Mrs. R. J. Josewski, Stillwater	1942-43
Mrs. F. S. McKinney, Minneapolis	1943-44
Mrs. Anthony J. Bianco, Duluth	1944-45
Mrs. E. V. Goltz, St. Paul	1945-46

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Mrs. M. S. Henderson, Rochester	1946-47
Mrs. J. A. Thabes, Brainerd	1947-48
Mrs. H. F. Wahlquist, Minneapolis	1948-49
Mrs. H. E. Bakkila, Duluth	1949-50
Mrs. Charles W. Waas, St. Paul	1950-51

The objectives of the State Medical Auxiliary are set forth in Article II of the Constitution:

"The object of the Auxiliary shall be: (1) Through its members, to extend the aims of the medical profession to other organizations which look to advancement in health and education; (2) To assist in the entertainment of national, state, district and county meetings; (3) To promote friendship among physicians' families; (4) To do such work as may from time to time be approved by the Minnesota State Medical Association."

During 1928 the American Medical Association met in Minneapolis, and the Minneapolis and St. Paul auxiliaries joined in entertaining the national Auxiliary.

In recent years the State Medical Association has urged members of the Auxiliary to inform themselves on current political bills which affect the medical profession, and to endeavor to pass this information on to the laity through the various women's clubs to which they belong.

The Minnesota State Medical Association gives us splendid support and assistance and has confidence in our ability to help them.

Since 1931 we have been co-sponsors with the Minnesota Public Health Association for the tuberculosis radio contest. The best essays written by high school students are broadcast, and the award is given by the president of the State Medical Auxiliary.

The radio has also been used by several county auxiliaries as a means of educating their own members and the public on health subjects.

During the past five years, weekly radio programs have been broadcast from Worthington, using the American Medical Association platters.

Minnesota has worked hard to promote the sale of *Today's Health* which now has in our state 206 one-year subscriptions, 202 two-year subscriptions, and nineteen three-year subscriptions.

Subscriptions to the *Bulletin* have increased in the past year to 91.

Newsletters are published four times a year by the Minnesota State Medical Association and written by the Auxiliary for the purpose of keeping every doctor's wife informed as to what is being done, both in the state, and individually in each county auxiliary.

Our president and president-elect both attend the Presidents' Conference of the American Medical Association, and the president attends the annual convention of the American Medical Association.

We have a simple and practical legislative program which helps us to a better understanding of our state Constitution.

As to our philanthropies, they are many and varied, and the majority of them assist medical charities.

Christmas seals are sold by many county auxiliaries for the benefit of tuberculosis. Some auxiliaries assist in the heart drive, and we work for the Cancer Home and donate money to this worthy cause. We help with the mobile unit and work in the blood center. One auxiliary sponsors the Glen Lake Tuberculosis Sanitorium's sale of articles, which sale realizes a substantial sum of money for the patients.

Many auxiliaries collect medical and surgical supplies and send them to countries in dire need of these articles.

Many auxiliaries give public relations teas, at which time a good opportunity is afforded to have a health talk or show movies of interest to our non-medical visitors.

Scrapbooks for children's hospitals have been made by some auxiliaries, others have sent boxes for the needy to European countries.

(To be concluded in the November issue)

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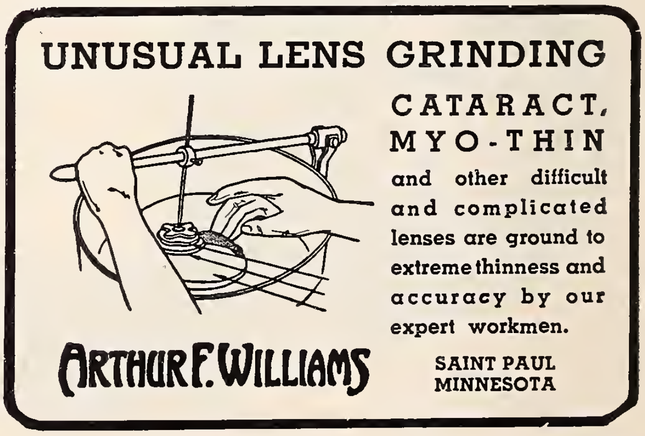
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In Memoriam

BENJAMIN FRANKLIN DAVIS

Dr. Benjamin F. Davis, formerly a Duluth surgeon, died August 26, 1951, at San Marino, California.

Dr. Davis was born in Chicago, October 13, 1884. He attended the University of Wisconsin and the University of Chicago where he received a Ph.D. in 1907. His M.D. degree was obtained at Rush in 1912, and he interned a year at the Presbyterian Hospital in Chicago.

After practicing seven years in Chicago, he moved to Duluth in 1920 where he engaged in private medical practice until 1942. In 1941 he was president of the St. Louis County Medical Society, of which he had been a member for years. He was also a member of the Minnesota State Medical Association and the American Medical Association, a member of the American Board of Surgery, a fellow of the American College of Surgeons and a member of the Western Surgical Association.

Dr. Davis is survived by his wife, Maria; a daughter, Sally, and three sons, William, John and Benjamin, Jr., all of San Marino, California.

HARRY B. EWENS

Dr. Harry B. Ewens, a prominent physician of Virginia, died on August 27, 1951, following a three months' illness. Dr. Ewens came to Virginia in 1910 to assist the late Dr. C. V. Malmgren, contract physician for the Oliver Iron Mining Company. Upon Dr. Malmgren's death, Dr. Ewen succeeded to the appointment. He was also a director of the Virginia school district for twenty-one years prior to his resignation in April, 1949, when he moved to Eveleth.

Dr. Ewens was born October 3, 1887, at Owen Sound, Ontario, Canada. He attended Toronto University where he obtained his M.D. degree in 1909. He also studied at McGill School of Medicine and took additional work at the University of Minnesota. His internship was served at Northwestern Hospital in Minneapolis. He served for a time in the Canadian Army overseas in Europe during World War II.

Dr. Ewens was a member of the More-Ewens Clinic and on the staff of the More Hospital at Eveleth. He was a member of the St. Louis County Medical Society, the Minnesota State Medical Association and the American Medical Association. Active in Masonic affairs, he was a past imperial potentate of the Duluth Shrine.

Dr. Ewens was married September 19, 1912, at Owen Sound, Ontario, to Marguerite Simpson who, with four sons, survives him.

THOMAS B. HARTZELL

Dr. Thomas B. Hartzell, prominent in the dental and medical circles of Minneapolis and the state, died August 26, 1951, at the age of eighty-five.

Dr. Hartzell was born in Beloit, Ohio, in 1866. He received his D.D.S. degree from the University of Minnesota in 1893 and his M.D. degree in 1894, also from Minnesota.

He had come to Minnesota in 1889 and taught in rural schools at Alexandria and Osakis, Minnesota. His teaching career began as an undergraduate instructor in histology at the University of Minnesota in 1890. He served as demonstrator in oral surgery from 1894 to 1896. From 1896 to 1903, he held the title of Professor of Comparative Dental Anatomy and Physical Diagnosis and Oral Surgery. From 1903 to 1913, he held a professorship in dentistry and in 1913 was made Research Professor in Mouth Infections. In 1920 he became a lecturer in Department of Medicine at the University.

Dr. Hartzell was president of the American Dental Association in 1921-22, a member of the General Medical Board of the Council of National Defense in 1917, a member of the medical section of the National Research Council and director of research in Minnesota for the American Dental Association.

Dr. Hartzell's training in both dentistry and medicine equipped him for the investigation of problems common to dentistry and medicine such as focal infections related to the teeth.

Dr. Hartzell was a member of the Delta Theta, Delta Sigma, Delta, Sigma Xi fraternities, the Hennepin County Medical Society, the Minnesota State Medical Association and the American Medical Association, and the American Dental Association. He was also a member of the Minneapolis Club, the Minikahda Club, the Lafayette Club, the Minneapolis Athletic Club and the Masons.

Dr. Hartzell is survived by his wife, Maud B.; a son, Dr. John B. Hartzell of Detroit, Michigan, and a daughter, Mrs. Walter Severson of San Francisco, California.

STANLEY G. LAW

On Monday, September 3, 1951, Dr. Stanley G. Law died of coronary heart disease at his summer cottage near Siren, Wisconsin. Dr. Law was a graduate of the University of Wisconsin, Rush Medical College, class of 1930. He was in general practice in Napierville, Illinois, until 1942 when he entered military service. He served as neuropsychiatrist with the U. S. Engineers on the Alaska-Canadian highway and as psychiatrist with the Manhattan Project in Oak Ridge, Tennessee. He left service with the rank of Major, Medical Corps. During 1945-1946, he was industrial psychiatrist to the Tennessee Eastman Corporation at Oak Ridge. In July, 1946, Dr. Law, with Drs. Eric Kent Clarke and William Fleeson, founded the Minnesota Psychiatric Institute in Minneapolis where he remained until the time of his death. He is the author of "Therapy Through Interview" published in 1948.

Dr. Law was a member of the American Psychiatric Association, The Association for the Advancement of Psychiatry, Hennepin County Medical Society and the Minnesota State Medical Association.

Relationship of Stress to Autonomic Lability

Studies in psychosomatics have shown that functional disorders often are a result of the patient's inability to adjust to emotionally stressful situations (stressor factors).

Nervous tension and chronic anxiety, discharged through a labile Autonomic Nervous System, can cause somatic disturbance.[1,2] Such states may involve any one of the organ systems or several at one time.[1,3] The outline below is designed to relate gastrointestinal and cardiovascular symptomatology to the exaggerated response of the autonomic nervous system.

	Physiologic Effects of Autonomic Discharge	
	Sympathetic	Parasympathetic
Gastro-intestinal System	Hypomotility Intestinal Atony Hyposecretion Reduced salivation	Hypermotility Gastrointestinal spasm Hypersecretion
Cardio-vascular System	Rapid heart rate Peripheral vaso-constriction	Slow heart rate Vasodilatation
Functional Manifesta-tions	Palpitation Tachycardia Elevated blood pressure Dry mouth and throat	Heartburn Nausea-vomiting Low blood pressure Colonic spasm

The data here tabulated is from references [3,4,5,6,7] given below.

When the clinical picture is suggestive of functional disorder, the diagnosis is supported by the presence of the following indications of autonomic lability:

Variable Blood Pressure
Body Temperature Variations
Changing pulse rate
Deviations in B. M. R.
Exaggerated Cold Pressure Reflex
Oculo-Cardiac Reflex Abnormalities
Glucose Tolerance Alterations

Therapy in these cases is directed toward: 1) relieving the somatic disturbance to prepare the patient for psychotherapy*; 2) guidance in making adjustment to stressful situations and correction of unhealthy attitudes.

*Drug treatment using adrenergic and cholinergic blocking agents in conjunction with sedatives.[8,9,10]

1. Ebaugh, F.: Postgrad. Med. *4:* 208, 1948. 2. Wilbur, D.: J.A.M.A. *141:* 1199, 1949. 3. Williams, E. and Carmichael, C.: J. Nat'l. Med. Assoc. *42:* 32, 1950. 4. Goodman, L. and Gilman, A.: The Pharmacological Basis of Therapeutics, The Macmillan Co., 1941. 5. Katz, L. et al: Ann. Int. Med. *27:* 261, 1947. 6. Weiss, E. et al: Am. J. Psychiat. *107:* 264, 1950. 7. Alvarez, W.: Chicago Med. Soc. Bulletin, 581, 1950. 8. Rakoff, A.: A Course in Practical Therapeutics, Williams and Wilkins, 1948. 9. Karnosh, L. and Zucker, E.: A Handbook of Psychiatry. C. V. Mosby Co., 1945. 10. Harris, L.: Canad. M.A.J. *58:* 251, 1948.

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He is survived by his wife, Alda, two daughters, Jodene and Myrna, and a son, Walter. Dr. Law was buried at the Fort Snelling National Cemetery, Minneapolis, Minnesota.

HAROLD EDWARD RICHARDSON

Harold Edward Richardson died in Saint Paul on June 18, 1951, after a long and painful illness. He was born in Stevens Point, Wisconsin, on February 17, 1895. After residing in Saint Paul for a short time, the family moved to Minneapolis, where Dr. Richardson attended the public schools and graduated from East High School. He then entered the University of Minnesota and was graduated from the Medical School in 1919. In college he became a member of the Zeta Psi academic fraternity and the Nu Sigma Nu medical fraternity. He was dilligent, an excellent student, and was honored by being elected to Alpha Omega Alpha honorary fraternity.

Following his graduation from medical school, Dr. Richardson served as intern at the Minneapolis General Hospital, where he met Dr. Clarrissa Clay, who also was an intern at the hospital. Dr. Richardson and Dr. Clay were married on June 26, 1919. Their first child died in infancy, but two children, Ann and Harold, were born later and they survive him.

In 1920, Dr. Richardson became associated in the practice of internal medicine with the late Charles Lyman Greene in Saint Paul. Cardiology was Dr. Richardson's sub-specialty and his interest in this specialty thrived under the guidance of Dr. Greene.

In 1925, Mrs. Richardson began suffering from a series of illnesses which were agonizing not only to herself but to her husband. After her death in 1933, following a Cesarian section, Dr. Richardson's health broke. However, he refused to stop work. His resolute will and unfaltering devotion to duty, together with his deep-rooted faith carried him through many months of mental agony that would have overwhelmed a man of lesser caliber.

In 1926 Dr. Richardson became associated with the Saint Paul Clinic, where he remained for eleven years. In 1937 he began to practice independently and was in independent practice until the time of his death.

On April 17, 1937, happiness entered Dr. Richardson's life again when he married Margaret Horsch Kiesner, and two years later a son John was born. The family was a happy one.

In addition to his wife and children, Dr. Richardson is survived by three sisters, Marguerite Richardson and Mrs. Sophia Guernsey of Minneapolis, and Mrs. Grover Dimond of Saint Paul.

Dr. Richardson was a member of various medical societies including the American College of Physicians, the Central Society for Clinical Research, the Minnesota Society of Internal Medicine, the Ramsey County Medical Society, the Minnesota State Medical Association, the American Medical Association, and others.

The foregoing statistical data are woefully inadequate to convey a true picture of the personality of Dr. Richardson. "Hon," as he was known to his intimates, was a genial, devout, keenly intelligent, and tolerant man. He loved his fellow man, he loved music, he loved his work, and he loved life. We mourn his passing.

Gordon R. Kamman, M.D.

Of General Interest

The sympathy of the members of the Minnesota State Medical Association is extended to their executive secretary, **Mr. R. R. Rosell**, on the occasion of the loss of his wife on September 9. Mrs. Rosell had suffered a heart attack in June, at the time of the Minnesota State Medical Association meeting held in Rochester.

* * *

Dr. W. P. Freligh, Albert Lea, announced on September 7 that **Dr. Alfred G. Sherman** had joined the Surgical and Medical Clinic at Albert Lea on September 1. Dr. Sherman is specializing in the practice of ophthalmology. A graduate of the University of Minnesota Medical School in 1939, he was in general practice for a time at St. Peter. Before joining the clinic at Albert Lea he completed a three-year fellowship in ophthalmology at the University of Minnesota and Veterans Hospitals, Minneapolis.

* * *

Dr. Anne Kimball, director of the Division of Serology, Minnesota Department of Health, left in September for Rangoon, Burma, where she will teach serology in the Pasteur Institute as a member of a public health unit concerned with venereal disease and its relationship to maternal and child health. Dr. Kimball has been with the Minnesota Department of Health since 1932 and has been director of the Division of Serology since 1947.

* * *

In New Richland, **Dr. George H. Olds** is remodeling the lower floor of a newly purchased house into a modern medical office. He expects to move into the new office about November 1. When remodeling is complete, space will be available for an additional physician sometime in the future.

* * *

Dr. Philip K. Arzt, Saint Paul, has opened a new office at 1261 Lowry Medical Arts Building, Saint Paul. He is a diplomate of the American Board of Neurology and Psychiatry and limits his practice to this specialty.

* * *

The annual **Dr. Leo G. Rigler** Lecture in Radiology will be presented at the University of Minnesota on November 1 by Dr. W. Edward Chamberlain, professor of radiology at Temple University Medical School, Philadelphia. Dr. Chamberlain will speak on "Recent Advances in Equipment for Fluoroscopy" at 8:15 p.m. in the auditorium of the Museum of Natural History.

* * *

After five years of practice in association with **Dr. R. H. Puumala** in Cloquet, **Dr. W. B. Halme** moved to Wadena on September 4 and opened offices in the Imgrund Building. A graduate of the University of Minnesota Medical School in 1943, Dr. Halme interned at St. Mary's Hospital, Detroit, and then served an eighteen-month residency in obstetrics and gynecology at the Chicago Lying-In Hospital and Dispensary, University of Chicago.

* * *

The Minnesota Department of Health frequently receives information from various sources concerning pathologists and radiologists who are interested in relocating. Because of the shortage of specialists in these fields, communities have experienced difficulty in securing pathologists and radiologists. For this reason the Minnesota Department of Health is anxious to refer to interested groups such information concerning these specialists as may come to its attention. Inquiries should be directed to the Division of Hospital Services, Minnesota Department of Health, University Campus, Minneapolis 14, Minnesota.

* * *

The engagement of **Dr. John W. Donahoe** and Miss Joan Mary Bofenkamp was announced on August 30. Dr. Donahoe, a former fellow in the Mayo Foundation at Rochester, is now practicing medicine at Sioux Falls, South Dakota.

* * *

Dr. N. P. Blochowiak of Rushford has been appointed to serve on the Fillmore County Nurses Advisory Committee. The appointment was made by the county commissioners and is for a term of two years.

* * *

Among the grants awarded by the **Microbiological Institute** of the National Institute of Health is one for $12,000 to Theodore A. Olson, University of Minnesota, for a study of the toxic substances which may be produced in water supplies by certain plankton blooms, with special reference to those produced by blue-green algae.

* * *

Dr. and Mrs. Robert E. Fricke, Rochester, returned home on August 12 following a two-month tour of Europe. During the trip Dr. Fricke, who is with the section on therapeutic radiology of the Mayo Clinic, visited radium clinics in several foreign cities.

* * *

Dr. A. B. C. Knudson, former Veterans Administration medical officer in Minneapolis and now chief of the physical medicine and rehabilitation division of the VA in Washington, D. C., has been elected vice president of the American Congress of Physical Medicine.

* * *

Appointment of **Dr. Moses Barron**, Minneapolis, to the National Diabetes Detection Committee of the American Diabetes Association was announced on September 13. Dr. Barron will help formulate plans

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for Diabetes Week, November 12 through 18, when throughout the country testing of five million persons for diabetes will begin.

* * *

Dr. E. Q. Ertel of Ellendale was named "Man of the Week" by the *Albert Lea Tribune* in a feature story on September 2. Dr. Ertel, who moved to Ellendale in 1908 with the intention of staying only a year or two, has now been in practice there for forty-three years. Of him the Albert Lea newspaper said, "If there is such a thing as a pillar of a community, Dr. Ertel is that."

* * *

Dr. Robert Erickson, formerly of Portland, Oregon, and originally from St. Peter, is now associated in practice with Dr. J. J. Ahlfs at Caledonia.

* * *

Grants of more than $120,000 for the study of heart disease were awarded on September 8 to the **University of Minnesota** by the United States Public Health Service. The separate grants for heart disease studies and the men who will do the work are as follows:

Dr. Ivan D. Baronofsky, $16,541; Dr. E. T. Bell, $3,296; Dr. Ancel Keys, $30,000; Dr. Joseph T. King and Dr. Maurice B. Visscher, $17,998; Dr. John LaBree and Dr. Joseph Jorgens, $6,993; Dr. Walton C. Lillehei, $19,619; Dr. Otto H. Schmitt, $9,973; and Dr. Jerome T. Syverton, Dr. Dennis W. Watson and Dr. William J. Cromartie, $18,727.

* * *

In St. Cloud, **Dr. C. J. Luckemeyer** has moved his offices to 708 St. Germain Street.

* * *

Late in August, **Dr. E. J. Nelson**, after almost thirty years of medical practice in Owatonna, announced his temporary retirement because of ill health. He transferred his practice to **Dr. Daniel K. Halvorsen**, formerly of Minneapolis, whom he plans to rejoin in practice when his health permits.

Dr. Nelson, a graduate of the College of Medical Evangelists in Los Angeles in 1922, interned at Swedish Hospital, Minneapolis, before beginning practice at Owatonna. During his many years there he has been active in civic and professional affairs. He has served as president of the Steele County Medical Society and as chief-of-staff of the Owatonna City Hospital.

Dr. Halvorsen, who has been associated in practice with Dr. Nelson for almost a year, received his medical degree at Yale University and then interned at the University of Minnesota Hospitals. Previous to moving to Owatonna he was a fellow in surgery at the University Hospitals and a resident surgeon at Northwestern Hospital, Minneapolis.

* * *

Dr. Norval Westby, son of the late Dr. Nels Westby, has returned to Madison and has become associated in practice with the clinic there. A graduate of the University of Nebraska Medical School, he served his internship at Seattle, Washington, and then took a year of postgraduate work at the University of Wisconsin.

* * *

An open house was held at the Village hall in Waverly on August 26 in honor of **Dr. C. L. Roholt**, who was leaving Waverly. After thirty years of practice in the village, he was moving to McIntosh. The open house, which was attended by residents of the area to bid Dr. Roholt farewell and to thank him for his service, was sponsored by the Waverly Chamber of Commerce.

* * *

Dr. Philip S. Hench, head of the rheumatic disease department of the Mayo Clinic, Rochester, has been named one of twenty winners of the 1951 "Pennsylvania Ambassador" awards. The awards are given to native Pennsylvanians now living elsewhere who have made outstanding achievements. Dr. Hench, a Nobel Prize winner, was born in Pittsburgh.

* * *

It was announced in August that the Bemidji Clinic had acquired a new staff member. **Dr. John Wheeler Griffin, Jr.,** joined the clinic after moving to Bemidji from Manhattan, Kansas, where he had been in private practice.

Following his internship at Kings County Hospital, New York, Dr. Griffin served as a physician during the war in both the European and Pacific Theaters. After the war he completed a three-year residency at

King's Bridge Hospital, New York, and then served for one year at the Winter Veterans Administration Hospital, Topeka, Kansas. He is certified by the American Board of Surgery.

* * *

Dr. Max Seham, chief of pediatrics at Mount Sinai Hospital, Minneapolis, was one of the speakers at a meeting of the Women's League of Adath Jeshurun Synagogue in Minneapolis on September 4. Dr. Seham was a participant in a panel discussion on "Bringing Up a Normal Child in an Abnormal World."

* * *

Dr. Robert F. Conway, a former resident of Mankato, has become associated in practice with **Dr. E. G. Olmanson** in the St. Peter Clinic, St. Peter. A graduate of the University of Minnesota Medical School in 1948, Dr. Conway has since served in the Army. He interned at Letterman General Hospital, San Francisco, held a residency in surgery at Gorgas Hospital, Panama, until 1950, and then spent nine months at a station hospital at Spokane, Washington. For the five months preceding his move to St. Peter he was stationed at Topeka, Kansas.

* * *

Some statistics are now available on a **diabetic detection campaign** sponsored in Hibbing by the local Chamber of Commerce last winter. Sixty-seven per cent of the Hibbing population was screened in the survey which uncovered seventeen new diabetics and seven old cases. There were 11,062 tests conducted. The results, according to the American Diabetes Association, were almost identical to national percentages.

* * *

Dr. William B. Tucker, chief of tuberculosis at Minneapolis Veterans Hospital, attended meetings of the International Union Against Tuberculosis in Paris early in September.

* * *

Dr. Sol Austrian opened offices for the practice of medicine in Cosmos on September 6. A graduate of the University of Minnesota Medical School, he served his internship at the United States Marine Hospital at Galveston, Texas.

* * *

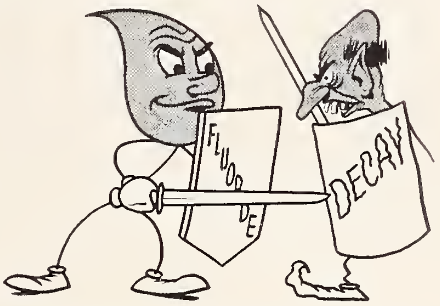
Dr. Walter A. Craychee, formerly of Minneapolis, has become associated in practice with **Dr. Roscoe C. Hunt** and **Dr. Robert S. Hunt** in Fairmont. A graduate of Temple University, Dr. Craychee interned in Detroit and then served in the armed forces for two years. He practiced medicine for two years at Mandan, North Dakota, after which he took postgraduate training at Northwestern Hospital and General Hospital in Minneapolis.

* * *

After twenty-three years of practice at Benson, **Dr. J. M. Arnson** has officially retired from the practice of medicine. He left Benson on August 20 for Eau Claire, Wisconsin, his place of birth, where he plans to make his permanent home.

Dr. Arnson, a graduate of Northwestern Univer-

Important News!



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sity Medical College in 1917, interned at Mercy Hospital in Chicago and at City and County Hospital (now known as Ancker Hospital) in Saint Paul. Following a year of service in the Army, he practiced at Graceville for seven years. He then spent a year in postgraduate study, both at schools in the United States and at the University of Vienna, Austria. He moved to Benson in 1928 and practiced there until the time of his retirement. Always active in civic and professional affairs during his years at Benson, he now plans to relax in his newly purchased home at Eau Claire.

* * *

Ground was broken on September 1 for a new nine-room office and clinic building which is being constructed by **Dr. D. C. Olson** in Gaylord. Modern in design, the one-story building will contain a waiting room, examining room, x-ray room, nurses' rooms, private offices. There will be enough space for another professional man in addition to Dr. Olson. The clinic is expected to be completed six months after construction was started.

* * *

Principal speaker at a county safety rally held at the Caledonia high school auditorium on September 25 was **Dr. H. Herman Young** of Rochester. Dr. Young showed color slides illustrating the results of farm accidents in southern Minnesota.

* * *

Dr. David J. Sanderson, formerly of Princeton, has joined the staff of the Fergus Falls Clinic. A graduate of the University of Minnesota Medical School, Dr. Sanderson served in the Navy for three years during World War II, then did postgraduate work in surgery at the University of Minnesota for three years. He practiced at Princeton for two years before moving to Fergus Falls on September 2. He is a diplomate of the American Board of Surgery.

* * *

Open house was held at a new medical building at Frost on September 9. The building was constructed by **Dr. Lewis Hanson,** who has been practicing at Frost since 1932.

* * *

Dr. Walter C. Alvarez, formerly with the Mayo Clinic, now living in Chicago, has been named editor-in-chief of *Modern Medicine,* a magazine published in Minneapolis. He succeeds **Dr. A. E. Hedback,** Minneapolis, the editor for twenty years, who has been named editor emeritus.

* * *

Dr. Ward Akester, a member of the staff of the Fergus Falls State Hospital for the past five years, has resigned to become a staff member of the Mount Pleasant State Hospital at Mount Pleasant, Iowa.

* * *

After twenty-one years of practice at Waterville, **Dr. C. A. Rohrer** has moved to Des Moines, Iowa, where he is specializing in radiology at the Veterans Hospital there. His move left Waterville with only one physician since he was unable to find anyone to replace him.

* * *

Principal speaker at a meeting of the Bethlehem Lutheran Mothers Club in Mankato on September 4 was **Dr. William S. Chalgren,** Mankato neuropsychiatrist. He discussed "Mental Health in the Child."

* * *

Minnesota's Professional Postgraduate Seminar has moved into its third year of successful operation. In the past two years the seminars, consisting of two lectures in each of eight evening sessions held once a week, have been presented at thirteen centers in Minnesota. The seminars for physicians cover the subjects of cancer, heart disease and psychosomatic medicine.

Five or possibly six centers are scheduled for seminars during the year 1951-1952. Red Wing and Brainerd are scheduled for this fall, Minneapolis and Saint Paul for this winter, and Faribault and perhaps one other city for next spring. The seminar staff is made up of University of Minnesota Medical School faculty members.

* * *

Dr. R. H. Puumala, Cloquet, coroner for Carlton County, discussed "Problems of the Coroner" at a meeting of the interns of St. Luke's Hospital, Duluth, on August 21.

* * *

Dr. George Earl, Saint Paul, was guest speaker at a meeting of the Kandiyohi-Swift-Meeker County

Medical Society in Litchfield on August 16. He spoke on "Problems in the American Medical Association" and showed motion pictures.

* * *

Dr. Robert A. Good, University of Minnesota Medical School, has been awarded a $6,825 research grant by the American Heart Association. Dr. Good specializes in the study of rheumatic fever.

* * *

The Medical and Chirurgical Society of Maryland will publish a monthly state medical journal beginning January, 1952. It will be known as the *Maryland Medical Journal* and will serve as the official organ of the state association. The new journal will be a member of the State Journal Advertising Bureau.

* * *

Dr. Benjamin A. Fine left Crosby during the middle of August and moved to California. Dr. Fine practiced in Crosby for ten years and was always active in numerous civic projects.

* * *

The foundation for the new **Mayo Memorial Medical Center** at the University of Minnesota has already been laid. Additional bids for the construction of the fourteen-story building were opened August 29, and the total accepted to date will bring the cost of the center to $11,609,990. Awards were made for the most part to Twin City contractors, and as soon as final approval of the United States Public Health Service is secured, the structural steel, already allocated by the Federal Security Agency, will start going up. This is expected not later than January 1, 1952.

The original intention was that the center would be twenty-two stories high. The State Legislature, however, which in 1945, 1947 and 1949 had appropriated $7,000,000 for the project, refused to appropriate the additional funds necessitated by increased costs to carry out the original plan. Two million dollars of the total were allocated by the United States Public Health Service from funds provided by the Hill-Burton Act, and the remainder came from grants from the National Cancer Institute, the National Heart Institute and private donations.

The new building will be a memorial to two outstanding Minnesota surgeons, Dr. William J. and Dr. Charles W. Mayo. In addition to the main building of fourteen stories, there will be an auditorium and a two-level garage.

* * *

Dr. Paul T. Lowry, who is studying internal medicine at the University of Minnesota, has been awarded a one-year postdoctoral fellowship by the National Foundation for Infantile Paralysis.

* * *

In St. Charles, **Dr. Pat Rollins,** formerly of Chicago, has moved into offices in a newly constructed office building. Dr. Rollins began practice at St. Charles during the past summer.

* * *

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Four Rochester physicians were among the guest speakers at the eighty-sixth annual session of the Michigan State Medical Society at Grand Rapids, Michigan, from September 23 to 28. **Dr. O. T. Claggett** spoke on mediastinal lesions; **Dr. James W. Kernohan** discussed peripheral neuritis; **D. H. L. Williams** presented a lecture on the medical treatment of Ménierè's disease; and **Dr. R. D. Pruitt** spoke on recent advances in the diagnosis of heart disease.

* * *

A limited number of **postdoctoral fellowships** to candidates whose interests are research and teaching in medicine and related biological and physical sciences are available, according to an announcement by the National Foundation for Infantile Paralysis. The fellowships cover a period of one to five years, with stipends ranging from $3,600 to $7,000 a year. Complete information concerning qualifications and applications may be obtained from Division of Professional Education, National Foundation for Infantile Paralysis, 120 Broadway, New York 5, New York.

* * *

Dr. D. M. Potek moved from International Falls on August 30 to join the medical staff of the Hastings State Hospital. A graduate of the University of Minnesota Medical School in 1933, Dr. Potek served his internship at St. Mary's Hospital, Duluth. After practicing briefly at East Grand Forks, he began practice at International Falls in 1936. In 1940 he joined the Army and served for five years before returning to his practice at International Falls.

* * *

The Charles Bolles Rogers achievement award, a silver bowl, to be known as the **St. Barnabas Bowl,** was presented to the Hennepin County Medical Society on August 28 by the board of trustees of St. Barnabas Hospital, Minneapolis. The award will be given annually to the outstanding doctor of the year in Hennepin County.

* * *

Dr. Hans Johnson, Kerkhoven, was honored for forty-six years of service in the area at a special Appreciation Day program in Kerkhoven on August 26.

A graduate of the University of Minnesota Medical School in 1904, Dr. Johnson practiced medicine at Murdock from 1905 to 1907, then moved to Kerkhoven, where he has since been in active practice. In his professional career he has served as health officer, as physician to the Swift County Selective Service Board, as president several times of the Tri-County Medical Society, and as chief-of-staff of both the Willmar and Benson hospitals.

Always active in civic affairs, he was the first president of the First National Bank of Kerkhoven, a charter member of the local Commercial Club, a charter member of the local Izaak Walton League, and is a member of several fraternal organizations. He has served on the village council and has twice been elected mayor of Kerkhoven. This year he began his thirty-ninth consecutive year on the school board, having served as its president continuously since 1927.

* * *

Dr. Chester W. Johnson, a resident of Excelsior, took charge of the Princeton Clinic at Princeton on August 30. It was announced that he would conduct the clinic for six weeks, at which time it was hoped that Dr. A. T. Kapsner would be able to resume his duties at the clinic.

* * *

The Public Health Service, through its chief research branch, the National Institute of Health, has awarded a total of 3,705 grants to non-Federal institutions and individuals, amounting to $44,371,188 during 1951. In the field of cancer, heart and mental disease $9,459,000 has been provided for special laboratory facilities, $8,100,000 to aid states in their disease control problems, $5,213,550 to improve and expand teaching facilities, and $1,693,315 to train physicians in new diagnostic or treatment procedures. Also $1,032,419 has been distributed to the states to initiate special control projects in cancer, heart disease and mental health. In the support of promising students doing postgraduate work in the field of medical research $1,568 321 was granted.

* * *

It was announced late in August that **Dr. Clinton G. Berg** and **Dr. Lewis M. Reid,** both of Excelsior, were planning to construct a new medical clinic this fall at Deephaven. Plans for the one-story clinic called for facilities for three or four doctors, including rooms for examination, treatment, emergencies, x-ray, recuperation, laboratories, pediatrics and minor surgery.

* * *

Motion pictures, exhibits, educational programs and demonstrations, were among the activities that featured the **Freeborn County Health Week** from September 10 to 14. The event was the first countywide health program conducted in Minnesota.

Local and state physicians and other persons prominent in health activities participated in the week-long program. Although the major activities on the schedule took place at Albert Lea, motion pictures and talks were also presented at Alden, Freeborn, Emmons, Glenville and Hollandale. In addition, literature on numerous health topics was sent to each home in the county.

* * *

Dr. John S. Grogan, retired Wadena physician, was the subject of a feature story in the *Wadena Pioneer-Journal* on August 30. The story, which recounted incidents in the many years of service given by Dr. Grogan to the community, was one of a series on members of the Wadena board of education. Dr. Grogan has served on the board for eighteen years, taking a very active interest in all of its affairs.

HOSPITAL NEWS

Dedication of the new $357,000 **Buffalo Memorial Hospital** was held at Buffalo on August 26. Principal speaker at the dedication ceremonies was Dr. Ralph Rossen, Minnesota commissioner of mental health. The ceremonies wer followeed by an open house, with guided tours of the twenty-nine-bed hospital.

* * *

In Buffalo the **Catlin Hospital** closed on September 4 after thirty years of service in the community.

BLUE CROSS—BLUE SHIELD

Minnesota Blue Shield claims paid during August, 1951, amounted to $264,361.79. Analysis of claims paid in August, 1951, show that of a total of 7,850 claims, 7,567 involved services rendered within the current six month period—of these, 47 per cent covered services rendered in July, 1951, 18 per cent services in June, 18 per cent in August, 13 per cent covered services rendered from March through May, 1951, and the remaining 4 per cent were claims for services more than six months prior to the date of submission of the claim. Although this may appear as a relatively small proportion of claims over six months old, this percentage does have a direct influence on financial planning because there is no way of anticipating the number of old cases which may be presented in any given month. If this percentage continues over a long period of time, it represents a substantial portion of Blue Shield business.

The initiation of a Blue Shield claim is the subscriber's responsibility. Theoretically, the first portion of the report form is to be completed by the subscriber in the doctor's office where a supply of Blue Shield forms should always

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be on hand. In many cases, the doctor's office personnel has assumed the responsibility for completion of the subscriber's portion of the report as well as the description of service. However, the increasing number of telephone calls and written inquiries which are being received indicate that in many cases it is expected that Blue Shield will initiate the claim. Although the Blue Shield office endeavors to assist the doctor and the subscriber in every way possible, it should not be necessary in most cases to contact the Blue Shield office in the submission of a claim. If such inquiries and contacts can be kept at a minimum, more time can be devoted to the processing of claims.

The subscriber's identification card indicates whether or not Blue Cross-Blue Shield or both are in effect. If there are entries on the right hand side of the identification card under the effective date, the first figure designates the effective month of Blue Cross, the second figure indicates the day it went into effect, and the right hand box designates the Blue Shield coverage. If the right hand box is blank, the subscriber does not have Blue Shield coverage. On all Blue Cross claims, the identification card should be presented on admittance to the hospital.

During the month of July, Blue Cross paid out $910,457 to hospitals for Blue Cross subscribers' care and the total to date this year was $6,639,686. Administrative expenses have been reduced from 9.5 per cent in 1950 to 8.3 per cent in 1951. This has been accomplished through greater efficiency in the interest of economy, at the same time providing better service to subscribers, hospitals, and doctors. Blue Cross and Blue Shield employes total 320 compared with 420 a year ago.

All employes, equipment and records of the Minnesota Blue Cross-Blue Shield organization will move soon to the new, modern five-story Blue Cross-Blue Shield office building under completion at 2610 University Avenue in St. Paul. The increasing scope of Blue Cross-Blue Shield services finally outgrew the limited facilities of the present offices. Employes have been separated in two buildings, with many housed in a former storage building never intended for office occupation.

The new Blue Cross-Blue Shield headquarters will provide for the utmost efficiency on behalf of the public-at-large, the hospitals and the medical profession, as well as greatly improved working conditions for all employes. Arrangements are under way to give all doctors, their staffs and hospital personnel an opportunity to visit and inspect the new Blue Cross-Blue Shield building.

A LESSON FOR ALL

There is a lesson for all Americans, and not simply for the members of the medical profession, in the message which will be brought to Seattle next week by Leone Baxter and Clem Whitaker, general manager and director, respectively, of the American Medical Association's national educational campaign against socialization of medicine.

That lesson was epitomized in an address which Miss Baxter made some months ago at a conference at Tulane University, New Orleans.

In explaining how the physicians of America have successfully opposed administration efforts to regiment them, she observed:

"Our conception of practical politics is that if you have a sound enough case to convince the folks back home, you don't have to buttonhole the Senator. He will hear from home, and he is prone to respect very highly the opinions from that quarter."

The result was summed up by Mr. Whitaker, in a speech at the same New Orleans conference, in which he said:

"When doctors finally were able to convince other groups that they were not only fighting for self-interest, but that they were fighting for the health and welfare of the American people, their support mounted in spectacular fashion and new allies joined medicine's cause by the thousands."

While this team is coming to Seattle to address the Washington State Medical Association, it is to be hoped that other groups will have an opportunity to hear them. For theirs is the story of how a vital phase of the American way of life is being defended in a truly American fashion. — *Post-Intelligencer,* Seattle, Sept. 5, 1951.

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BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical Libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

CLINICAL-UNIPOLAR ELECTROCARDIOGRAPHY. Bernard S. Lipman, A.B., M.D., Assistant Professor in Medicine, Emory University School of Medicine, Atlanta, Ga.; and Edward Massie, A.B., M.D., F.A.C.P., Assistant Professor of Clinical Medicine, Washington University School of Medicine; Director of Heart Station, Barnes Hospital, St. Louis; Director, Cardiovascular Clinic, Washington University Clinics. 232 p. Illus. Price $5.00. Chicago: Year Book Publishers, 1951.

Recent advances in electrocardiography have brought about an increase in the number of books published concerning this subject. These volumes have varied from those that are elemental to those that are highly technical in character.

The present volume takes a pleasant middle of the way approach to the problem of teaching electrocardiography. The authors write clearly and simply; the illustrations as a whole, are well chosen and the format is good. Such criticism as may be directed is overweighed by the general quality of the book.

I can recommend it for those who are interested in a concise, well-documented volume.

John F. Briggs, M.D.

OCCUPATIONAL THERAPY SOURCE BOOK. Edited by Sidney Licht, M.D. With an introduction by C. Charles Burlingame, M.D. 90 pages. Price $1.00. Baltimore: Williams & Wilkins Co., 1948.

Three years ago this little book was written and compiled for all who are interested in occupational therapy and mental hygiene and particularly for occupational therapists.

Dr. Licht, who is a specialist in physical medicine and rehabilitation, first outlines the early history of occupational therapy, in which he sets forth concisely and chronologically the various outstanding contributions that have been made through the years to humane care of the mentally ill from the time of Asclepiades, more than one hundred years before Christ, to the year 1917, when George Barton coined the phrase *occupational therapy*.

The editor then presents to the reader excerpts from a few of the most important writings on the subject that have appeared since the time when Pinel seized the opportunity to revolutionize the treatment of the insane during the French Revolution. All but one of the articles were published in the 19th Century. They include selections from the writings of Pinel, Reil, Hallaran, Rush, Tuke, Esquirol, Leuret, Voisin and Kirkbride. The 20th Century article selected is by Eva Charlotte Reid and, in the editor's estimation, "was one of the most important contributions in the field to appear before the first World War and ranks with the writings of Dunton." Each selection is prefaced with brief remarks about the author, when published, and why chosen to be included.

THE MANAGEMENT OF FRACTURES, DISLOCATION, AND SPRAINS. By John Albert Key, B.S., M.D., St. Louis, Missouri, Clinical Professor of Orthopedic Surgery, Washington University School of Medicine; Associate Surgeon, Barnes, Children's, and Jewish Hospitals; and H. Earle Conwell, M.D., F.A.C.S., Birmingham, Alabama, Associate Professor of Orthopaedic Surgery, University of Alabama School of Medicine; Chief of the Orthopaedic Service, South Highland Infirmary; Consulting Orthopaedic Surgeon to Carraway Methodist Hospital and Baptist Hospitals; Attending Orthopaedic Surgeon, Children's Hospital, Jefferson-Hillman Hospital, East End Memorial Hospital, and St. Vincent's Hospital, Birmingham, Alabama. 5th ed. 1232 p. Illus. Cost $16.00. St. Louis: C. V. Mosby Co., 1951.

The fifth edition of this widely known and highly popular reference book on orthopedic injuries has undergone considerable revision, but the general content and format closely resemble those of the fourth edition.

The sections on medicolegal problems and workman's compensation have been deleted from the book entirely. Perhaps the most striking change is in the section on low back injury. Dr. Key has removed the section dealing with low back strain for he believes that almost all such lesions are disc lesions. The revised discussion of disc lesions is excellent, both from the point of view of diagnosis and treatment. In the section on treatment the non-operative method of handling discs is presented in meticulous detail so that no one reading the book should have any trouble using his method. The operative method is likewise handled well.

Other additions of note include information on the use of antibiotics and the use of intramedullary nails in fixation of fractures. These subjects are dealt with briefly and not in any detail but for a text of this type this treatment seems adequate. A discussion of the Putti-Platt and Baukart procedures in the treatment of recurrent dislocation of the shoulder is a welcome addition to the text. A similar improvement exists in the changes made in the section on anatomical consideration of hip injuries.

The deletions from the text have balanced the additions so that the fifth edition is about 100 pages shorter than the fourth edition. The text does not suffer from the loss of these sections, rather the book has been improved in its revision. A few minor errors exist in the index and in the text data, but in a work of this size this is difficult to prevent. It is a text to be recommended highly, especially to the general surgeon and general practitioner.

Frederich M. Owens, Jr., M.D.

HANDBOOK OF NUTRITION: A SYMPOSIUM. Prepared under the auspices of the Council on Foods and Nutrition of the American Medical Association. Second edition. 717 pages. Price $4.50. New York, Philadelphia, and Toronto: Blakiston Co., 1951.

This volume is a reprint of a series of articles which were written by authorities in their fields for the AMA Council on Foods and Nutrition and which were published intermittently in the *Journal of the American Medical Association* from 1948 to 1950. There have been some additions. The articles form a symposium of four parts on nutrition. Part I deals with individual nutrients; Part II sets forth the nutritional needs of human beings of various ages and under various conditions; Part III discusses nutritional deficiencies; and Part IV has to do with foods and their nutritional qualities. The book contains new information on these subjects, information brought to light by unusual war conditions. Each chapter contains many references to works cited. A detailed index adds to the volume's usefulness.

For persons in those professions interested in nutrition the Handbook should be a useful tool in summarizing for them the recent findings in the subject.

HYPERTENSION: A Symposium held at the University of Minnesota on September 18, 19 and 20, 1950. Edited by Elexious T. Bell, M.D. 573 pages. Illus. Price $7.50. Minneapolis: University of Minnesota Press, 1951.

This volume contains the most complete collection of essays by eminent authorities, both in the field of experimental research and in clinical medicine. The various theories of etiology—the anatomical, the chemical and the endocrine—are summarized. The most recent advances in therapy, covering all phases of the practice of medicine—dietary, pharmacological, surgical and psychological—are included. There are several sections devoted to questions and discussions, giving the essayist an opportunity to clarify or defend his theory.

This symposium is dedicated to three of Minnesota's outstanding workers in this field, who have gained recognition throughout the medical world, Dr. E. T. Bell, Dr. B. J. Clawson and Dr. G. E. Fahr. This book can be considered an authority of our present-day knowledge of this controversial subject.

—C. K. Williams, M.D.

CARDIOVASCULAR DISEASE: FUNDAMENTALS, DIFFERENTIAL DIAGNOSIS, PROGNOSIS AND TREATMENT. Louis H. Sigler, M.D., F.A.C.P., Attending Cardiologist and Chief of Cardiac Clinic, Coney Island Hospital; Consulting Cardiologist, Rockaway Beach Hospital; Consulting Cardiologist, Menorah Home and Hospital for the Aged. 551 pages. Illus. Price $10.00. New York: Grune and Stratton, 1949.

This comparably condensed textbook is clearly and concisely written, and the author has included the latest methods of diagnosis and treatment. Because of the rapid advances in this field, however, one will look in vain for the prophylactic treatment of rheumatic fever with penicillin, the use of cortisone and ACTH, or the surgical treatment of mitral stenosis. Electrocardiography is not discussed because of an earlier treatise of this subject by the author. The book is, nevertheless, worthwhile reading for medical students or physicians desiring an up-to-date discussion of cardiovascular disease.

FROM THE HILLS: AN AUTOBIOGRAPHY OF A PEDIATRICIAN. By John Zahorsky, M.D. 388 pp. Illus. Price $4.00. St. Louis: C. V. Mosby Co., 1949.

"From the Hills" is the story of a man whose life encompasses the development of modern pediatrics. To those who have ever come under the influence of John Zahorsky, it is a fascinating view into the life, the hopes, and the dreams of this leader in pediatrics. But even more, this book recreates the development of this country in the past seventy-five years; it is a bit of Americana with a nostalgic human touch. John Zahorsky's interests were many, his professional success unquestioned, yet withal he remained the warm, sincere and conscientious physician. His fascination with the poets and poetry reveal a character that sought expression of the beauty of life itself.

This is a book that should attract layman and physician, for John Zahorsky's story is the essence of humaness and hope.

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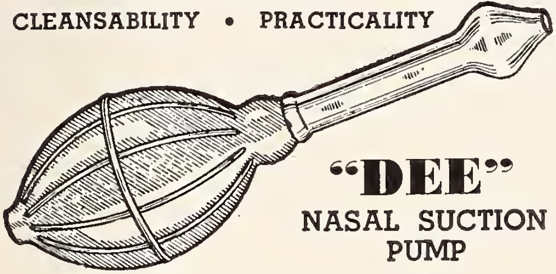

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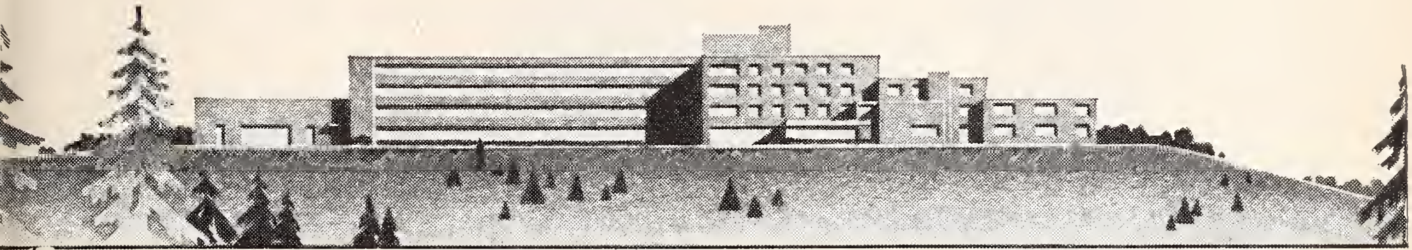

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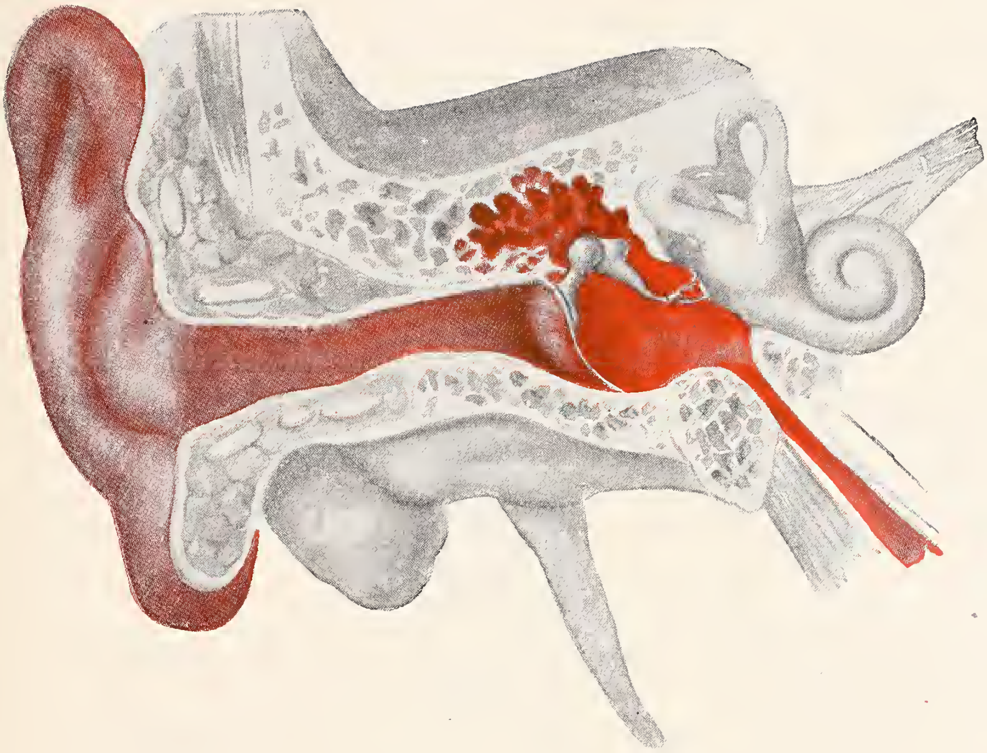

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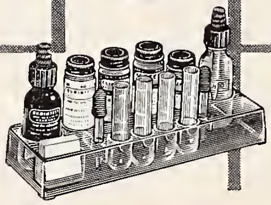

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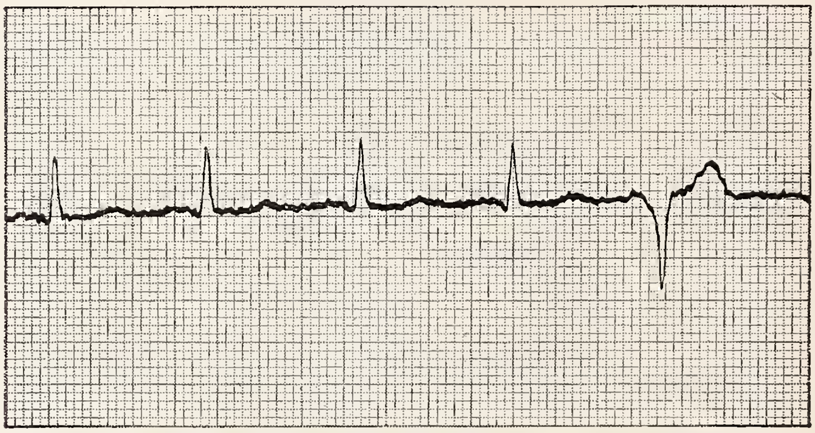
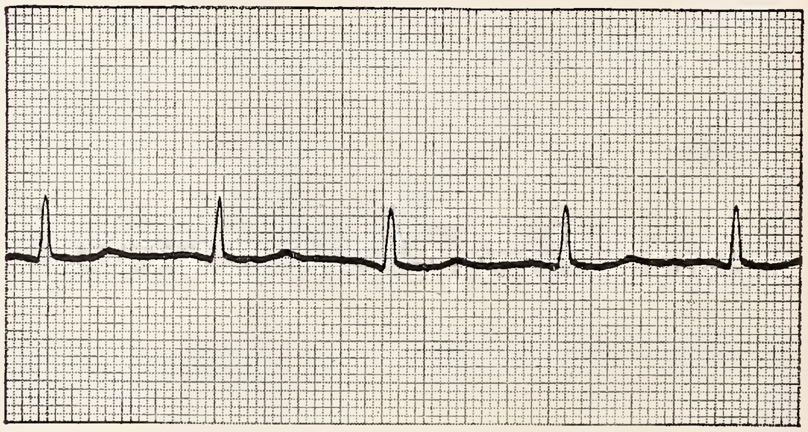
in ventricular premature contractions



Lead I. Control tracing, ventricular premature contraction.



Lead I. Tracing one week later; patient maintained on 2 Gm. Pronestyl per day. Normal sinus rhythm.

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less toxic than quinidine

Indications and Dosage

IN CONSCIOUS PATIENTS

For the treatment of ventricular tachycardia:

Orally: 1 Gm. (4 capsules) followed by 0.5-1.0 Gm. (2 to 4 capsules) every four to six hours as indicated. It is important that the drug be given by mouth unless the urgency of the situation makes intravenous administration essential.

Intravenously: 200-1000 mg. (2 to 10 cc.). **CAUTION—ADMINISTER NO MORE THAN 100 MG. (1 CC.) PER MINUTE.**

Hypotension may occur during intravenous use in conscious patients. As a precautionary measure, administer at a rate no greater than 100 mg. (1 cc.) per minute to a total of no more than 1 Gm. Electrocardiographic tracings should be made during injection so that injection may be discontinued when tachycardia is interrupted. Blood pressure recordings should be made frequently during injection. *If marked hypotension occurs, rate of injection should be slowed or stopped.* The patient should remain lying on his back. If the symptoms demand it, cautiously employ measures to raise the blood pressure moderately.

For the treatment of runs of ventricular extrasystoles:

Orally: 0.5 Gm. (2 capsules) every four to six hours as indicated. Where administration is continued for appreciable periods, there should be occasional electrocardiographic checks to determine the need for the drug. Where there is both kidney and liver disease, accumulation of the drug may occur and continued administration may be hazardous.

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During anesthesia, to correct ventricular arrhythmias:

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*Perloff, W. H.: Am. J. Obst. & Gynec. 58:684 (Oct.) 1949.

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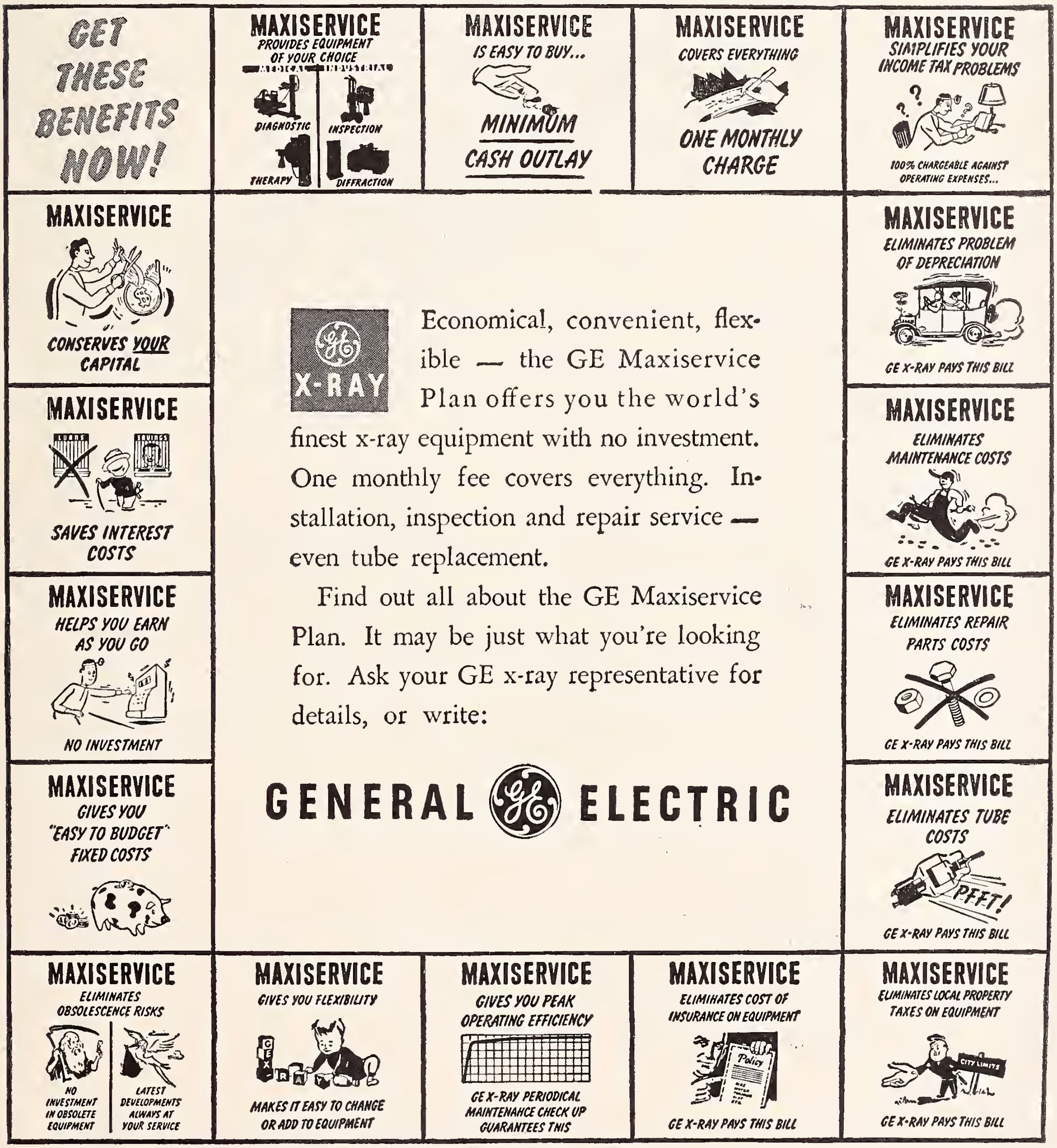

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Animal studies have forcefully demonstrated the adverse effect of inadequate protein nutrition on recovery processes.[1] Protein-depleted rats fed an adequate repletion ration manifest a rapid recovery of lost weight, of normal plasma protein and hemoglobin levels, of certain enzyme systems, and of normal capacity to synthesize antibody protein and to resist infection. On the other hand, reduction in the amount of but one essential amino acid in the repletion ration quickly causes loss of appetite, diminished food consumption, and inadequate weight recovery. This quick appearance of overt symptoms due to a shortage of an essential amino acid contrasts sharply with the delayed appearance of symptoms induced by deficient intake of any other essential nutrient.

These manifestations of acute amino acid deficiency noted in the rat can occur as readily in the normal human subject consuming a diet lacking in any one of the eight essential amino acids.[2] Loss of appetite and of body nitrogen accompanied by malaise quickly results. Furthermore, addition of the missing amino acid to the diet quickly restores the appetite, nitrogen equilibrium, and the previous state of health. Apparently, even in normal persons, lack of an amino acid in the diet partially or completely interrupts protein synthesis as well as increases tissue protein catabolism.[1] The conclusion is incontestable, therefore, that adequate protein nutrition is vital for speeding the processes of recovery from massive disease or major surgery.

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2. Rose, W. C.: The Nutritive Role of the Amino Acids, The Science of Nutrition, New York, The Nutrition Foundation, 1946.

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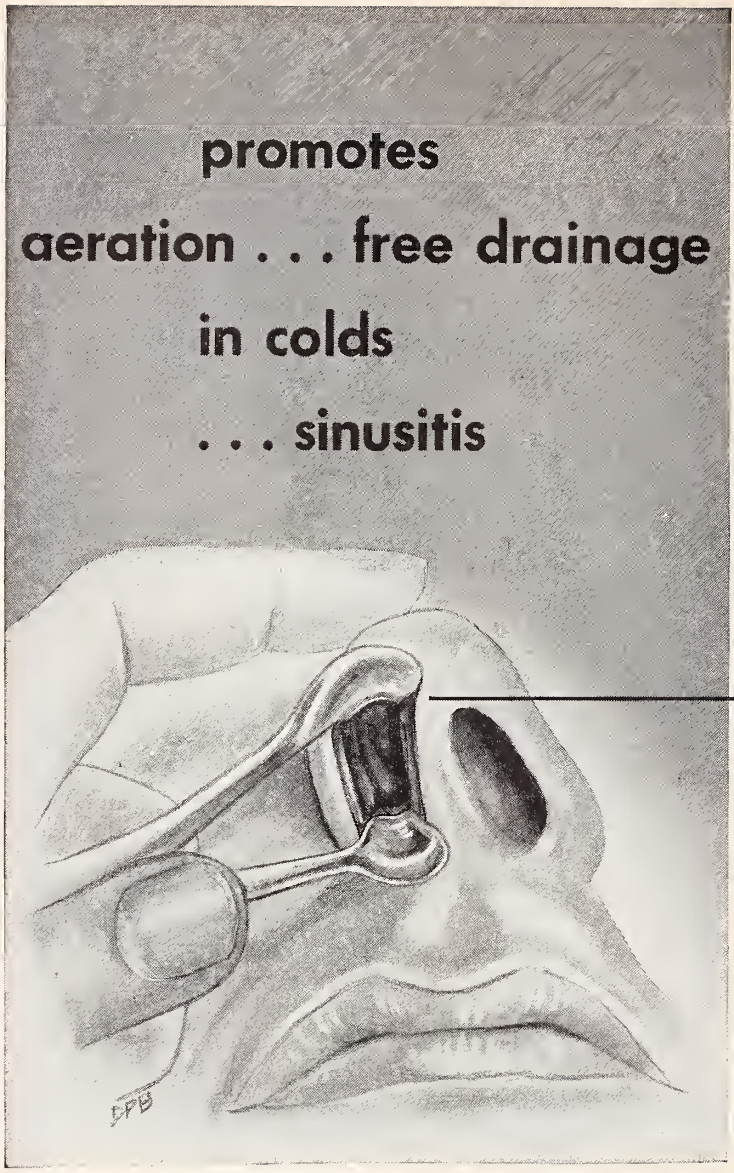
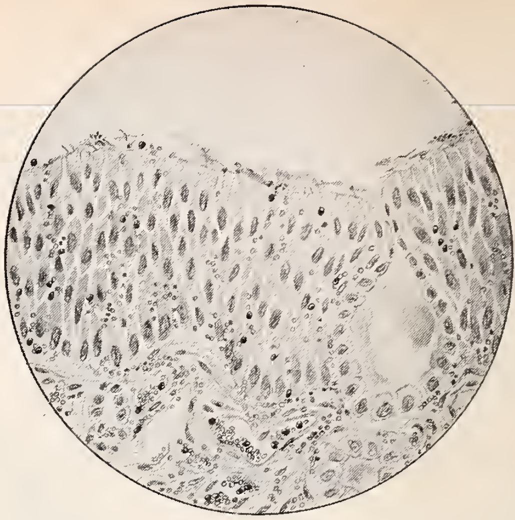
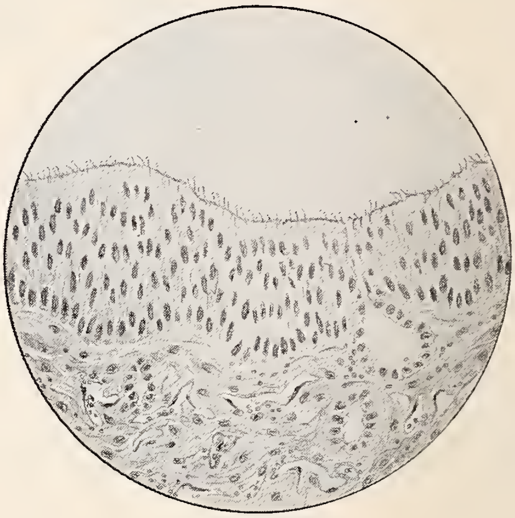




Nasal membrane showing increased leukocytes with denudation of cilia.

Normal appearing nasal epithelium.



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The higher protein content of normally diluted Dextrogen—2.2% instead of 1.5% as found in mother's milk—satisfies every known protein need of the rapidly growing infant. Its lower fat content makes for better tolerability and improved digestibility.

Dextrogen serves well whenever artificial feeding is indicated, and is particularly valuable when convenience in formula preparation is desirable.

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*Applicable third week and thereafter; 1:3 for first week, 1:2 for second week.

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All the mother need do is pour the contents of the Dextrogen can into a properly cleaned quart milk bottle, and fill with previously boiled water. Makes 32 oz. of formula, ready to feed.*

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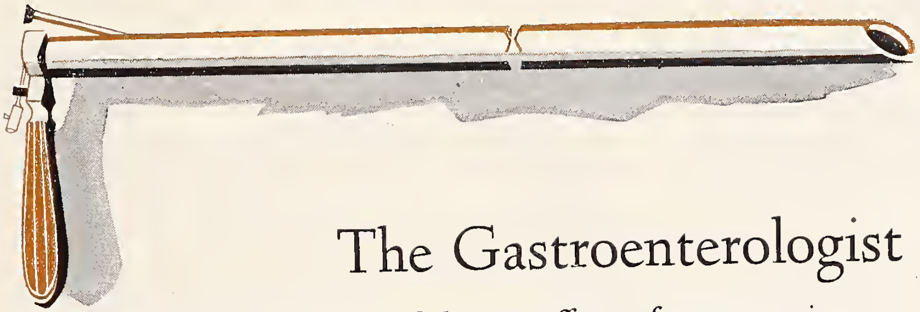

The Gastroenterologist

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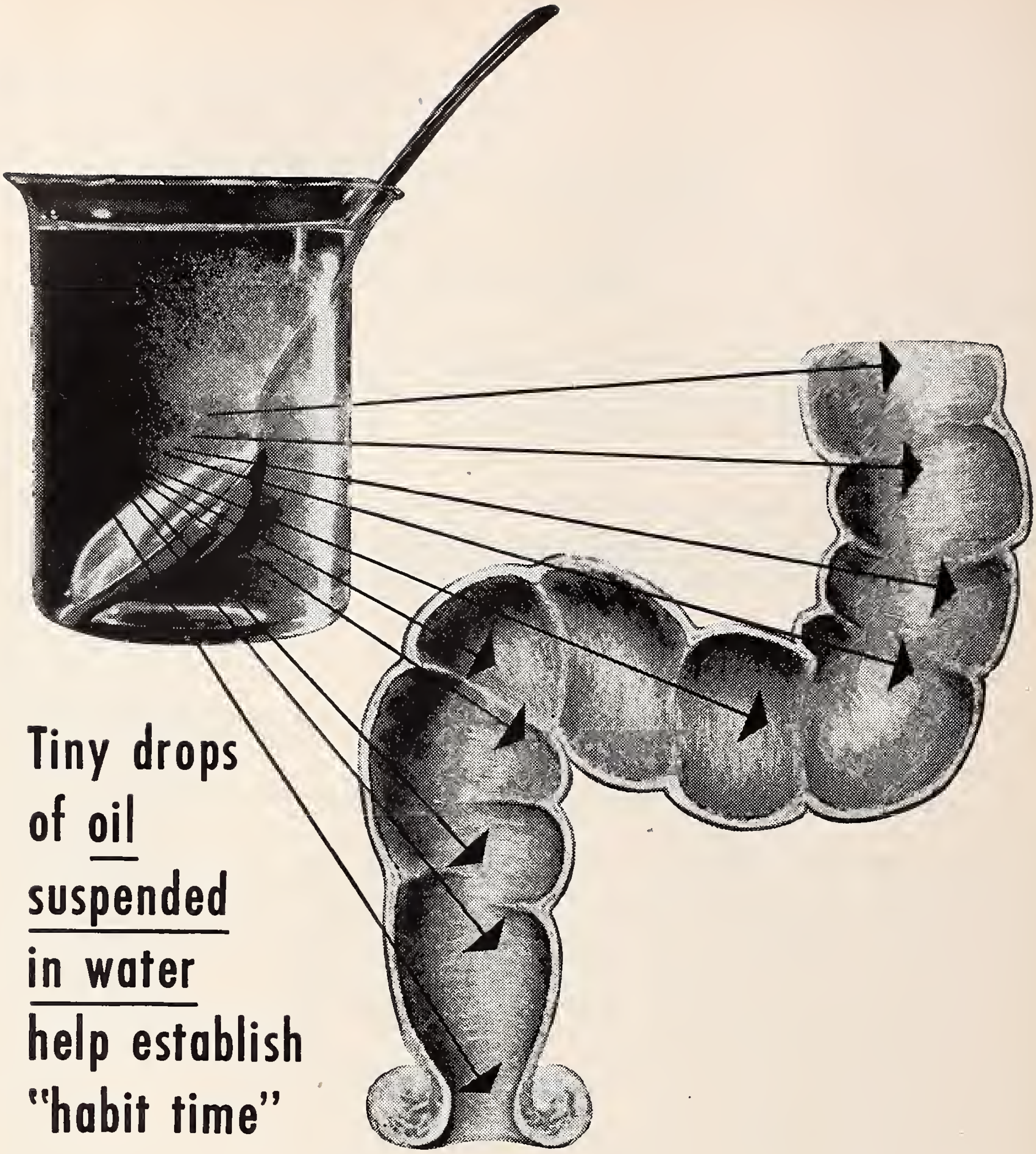

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1. *Smiles, William J.: Long-Acting Heparin Preparation: A Useful Adjunct in Anticoagulant Therapy. U. S. Armed Forces Med. J., Vol. II., No. 1 (Jan.) 1951.*

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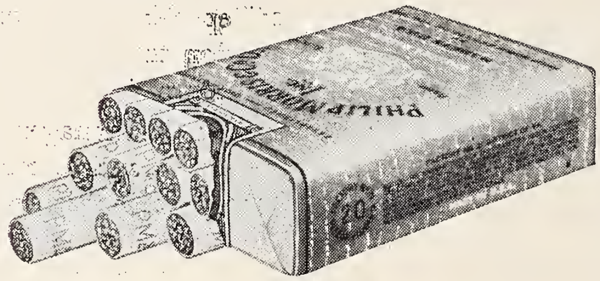

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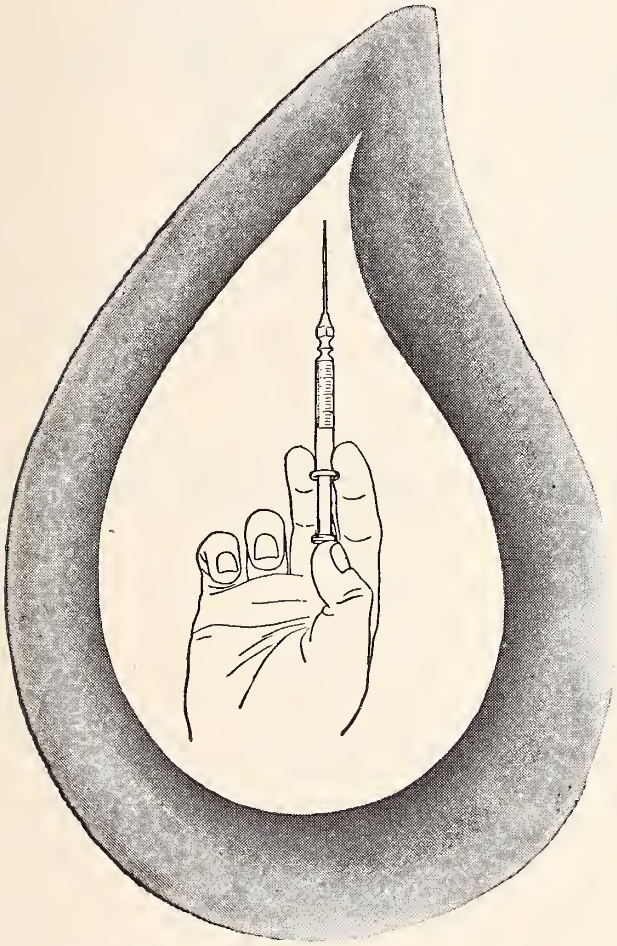

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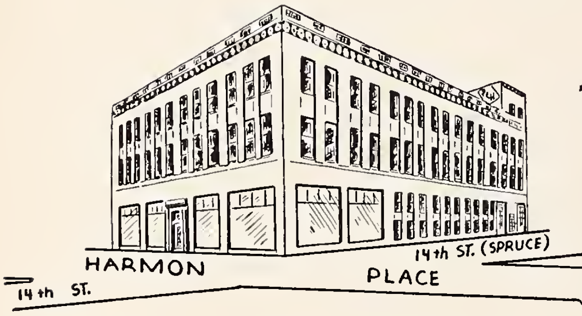
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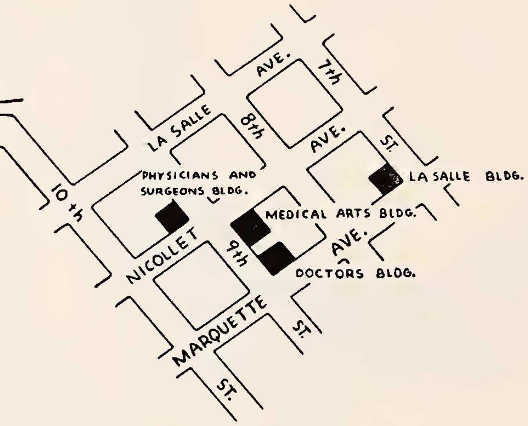
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Minnesota Medicine

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

Volume 34 November, 1951 Number 11

NEOPLASMS OF THE BONY PELVIS PRODUCING THE SCIATICA SYNDROME

ELMER C. PAULSON, M.D.
Worthington, Minnesota

IT is generally recognized that the causes of sciatica are manifold. However, in recent years, it has been emphasized in hundreds of publications that ruptured lower lumbar intervertebral disks are by far the commonest cause, particularly of unilateral sciatica. The symptoms and signs of a ruptured disk are now so well known that there is a danger of forgetting about the other possibilities, of which Stuck lists thirteen.[2]

This paper will deal with only one of these other causes of sciatica: tumors of the sacrum and iliac bones. In all cases described, a ruptured disk was considered clinically to be a possibility. In some of the cases, this was the only possibility considered. In others, it was one of two or three possibilities. In all of the cases, a painstaking perusal of the roentgenogram of the pelvis revealed the cause of the sciatic pain to be a bony tumor. It is noteworthy that in some of the earlier cases of the series, the diagnosis was completely missed on the first reading and only picked up in retrospect after the surgeon had performed a laminectomy, during which he encountered tumor tissue. This experience has not been unique with us. Radiologists generally agree that the pelvis, and particularly the sacrum, is a difficult structure in which to recognize early bone lesions. The most obvious reason for this, of course, is the variable distribution of intestinal gas and feces over this portion of the radiograph. We feel that it is necessary for a radiologist to train himself to examine each sacral ridge and foramen in minute detail before dismissing a pelvic film as normal.

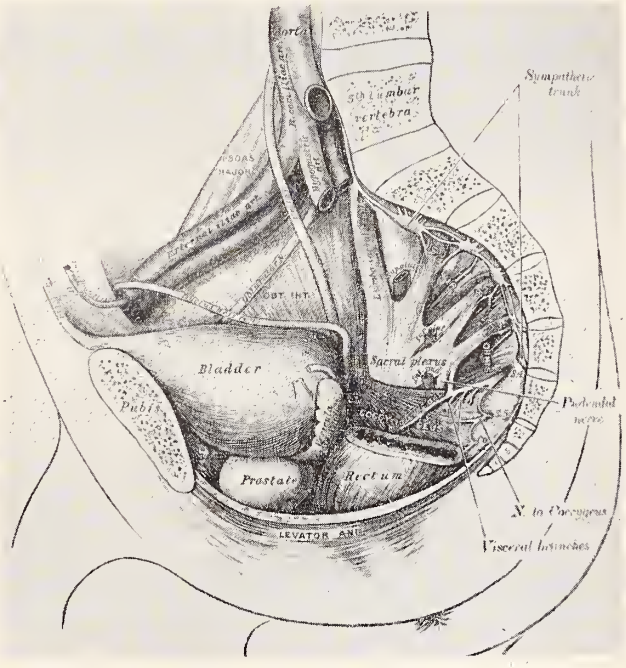

Fig. 1. From Gray's *Anatomy,* showing the relationship of the origin of the sciatic nerve to the sacrum and iliac bone.

Figure 1, taken from Gray's *Anatomy,* shows the relationship of the lumbo-sacral trunk and sacral plexus to the sacrum. Since the first and second sacral nerves contribute important components to the sciatic nerve, it is graphically apparent that bony lesions in the proximity of the foramina of these nerves would cause pressure upon the nerves, which would be manifested by symptoms along their distribution. DeSeze, Ordonneau and Jurmand[1] describe several cases of unilateral sciatica in which pelvic roentgenograms showed involvement of the first two sacral foramine with metastatic cancer. In their case, the findings exactly mimicked those of a herniated

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From the Department of Radiology of the University of Minnesota, Minneapolis, Minnesota, and the Charles T. Miller Hospital, Saint Paul, Minnesota.

disk, including loss of the Achilles reflex and pain along the external side of the foot to the fifth toe. We have been impressed, also, by the fact that lesions of the ilium bordering on the greater sciatic notch (through which the sciatic nerve passes posteriorly) are apparently capable of initiating sciatic pain, probably by pressure upon the nerve trunk. Case 2 is an example of this condition.

In the practical consideration of a given case of sciatica, there are certain factors in the history which may aid the clinician in deciding whether a pelvic bony tumor should be considered in the differential diagnosis. These factors have been well summarized by M. J. Chavany[1] in his discussion of the paper by DeSeze et al. In the first place, these bony tumors are quite often metastatic carcinomas. Consequently, in any patient who has any history of cancer, e.g., breast carcinoma, this possibility should be given priority in investigation of a sciatic syndrome. Also, in patients of advanced age, the possibility of metastatic cancer should head the list. The character of the pain may contribute a clue. In the case of bone metastases, the pain is usually persistent and extreme in degree. Even morphine may not completely relieve it.

It has become the standard procedure in many places to order lumbar myelograms in sciatica cases to confirm the clinical impression of a ruptured disk and to get accurate information on the size and location of the ruptured disk. Preliminary to the myelography, it is customary to take routine anteroposterior and lateral films of the lumbo-sacral spine. This is done with two ends in view: first, to search for other lesions; and second, to help plan the myelogram. We believe that this practice should be universal and that these films should be studied painstakingly with a fine-toothed comb. One must guard against the habit of using these films only for planning the myelogram.

The cases which follow were all tumors of the bony pelvis in which sciatic pain was a prominent feature:

Case 1.—R. R., a woman, aged forty-five. (Fig. 2).

History.—Slipped on damp floor while at work seven weeks ago and injured her lower back and right hip. After a few days, her hip stiffened and she became bedridden. Treated with local heat and chiropractic adjustments. After four weeks, she was hospitalized. Her pain was located in the right sacro-iliac region and radiated down the back of the right leg to the heel.

Physical Examination.—Generally normal except for evidence of exquisite pain on motion of right leg.

Laboratory.—Fasting blood sugar, 152 mg.; 190 mg. Sedimentation rate, 95 mm. Hemoglobin, 10.6 gm. Undulant fever agglutination, negative.

Clinical Diagnosis.—(1) Diabetes mellitus, mild, (2) Herniated intervertebral disk. (3) Obscure sacro-iliac pathology.

X-Ray Examination.—Lumbo-sacral spine (December 8, 1948): Second degree spondylolisthesis of fifth lumbar vertebra on sacrum. Large area of bone destruction involving right wing of sacrum. Indistinctness of right sacro-iliac joint. Conclusion: Neoplasm, questionable type, probably metastatic.

Course.—Given series of deep x-ray treatments to right sacro-iliac region with relief of pain and disability. A year later was feeling well. No follow-up since.

Case 2.—Mrs. E. J., a woman, aged forty-eight (Fig. 3).

History.—Had right radical mastectomy on June 27, 1949, for carcinoma. On December 11, 1949, was admitted to hospital with complaint of intermittent pain in left leg for past six weeks. Pain radiated down leg to ankle, aggravated by coughing and straining.

Physical Examination.—Absent right breast. Left sacro-iliac tenderness.

Laboratory.—Hemoglobin, 11.7 gm.; white blood cells, 8,350. Sedimentation rate, 99 mm/hr.; 114 mm/hr.

Diagnosis.—(1) Possible metastases. (2) Herniated intervertebral disk. (3) Arthritis.

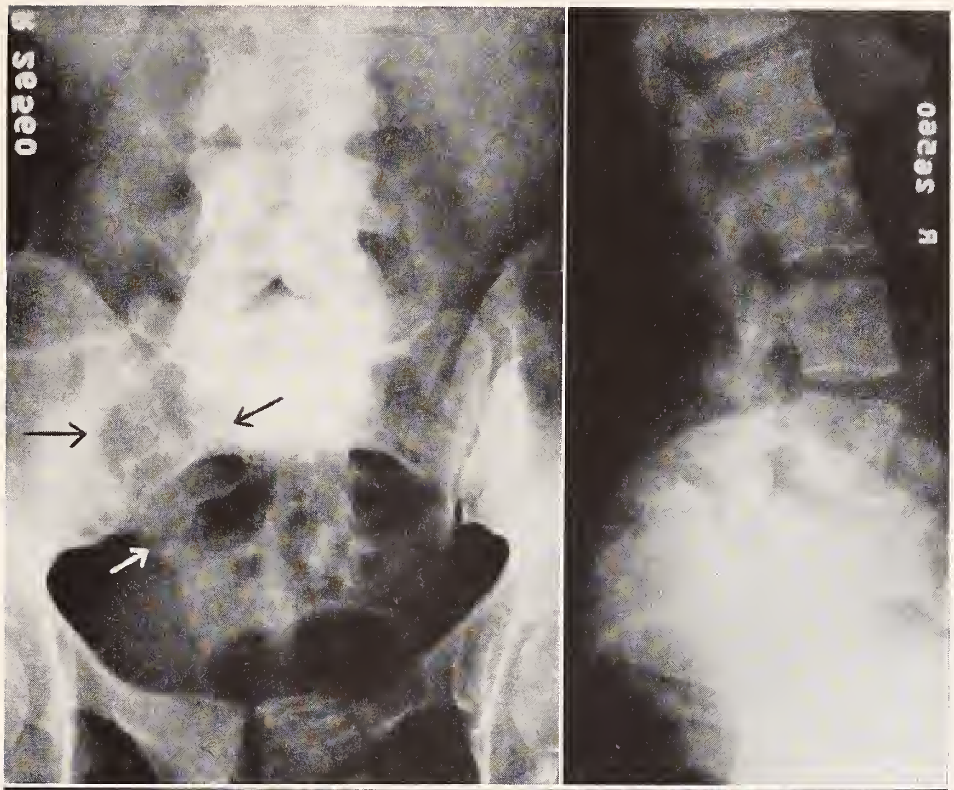
X-Ray Examination.—Pelvis (December 14, 1949): Showed area of destruction in left ilium and in left ischium, typical of carcinomatous metastases.

Course.—Series of deep x-ray treatments to left side of pelvis. Also given testosterone 75 mg. 1-m weekly; later increased, for five weeks. These treatments were followed by relief from pain.

Case 3.—A. E., a man, aged sixty-seven (Fig. 4).

History.—About two months ago, he began to experience a little slowing of his urinary stream and nocturia. The symptoms continued until a week ago, when he developed acute urinary retention and has had to be catheterized daily since.

Also, about two to three months ago, he began to have intermittent pain in his right leg. This pain had been



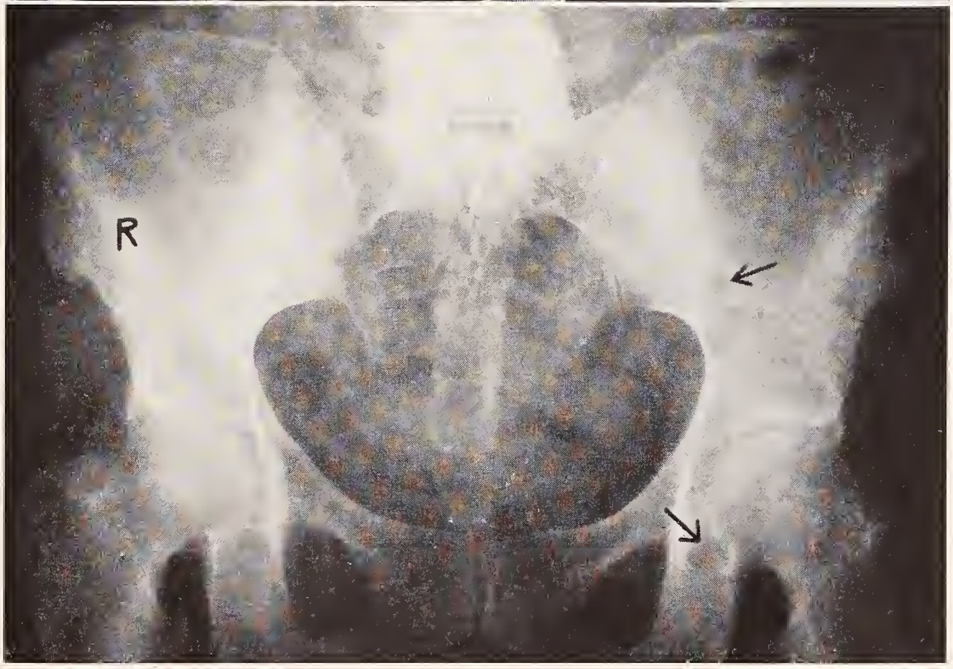


Fig. 2 *(above)*. Case 1. R. R. Note the spondylolisthesis at the lumbo-sacral junction which was not the cause of the sciatica. There is a large area of bone destruction in the right wing of the sacrum, which is difficult to distinguish from colonic gas shadows, particularly in this reproduction. The original roentgenogram showed it to better advantage.

Fig. 3 *(below)*. Case 2. E. J. Areas of destruction from carcinomatous metastases are demonstrated in the left ilium and left ischium. The upper lesion lies adjacent to the pathway of the left sciatic nerve.

excruciating and occurred in spells lasting two to three hours or more. The pain would start in buttock, knee, or ankle and radiate up or down the posterior aspect of the leg. The pain occurred anytime and was not initiated by activity. No history of injury. Occasionally there had been numbness of the leg.

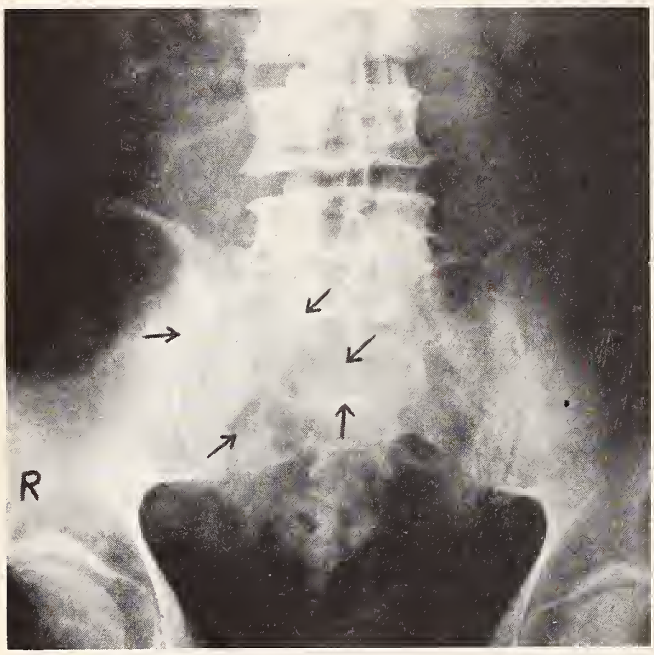


Fig. 4. Case 3, A. E. There is a large, ragged area of bone dstruction on the right side of the upper sacrum. Here, again, the diffculty of distinguishing the lesion from colonic gas shadows is obvious. It is often necessary to repeat the examination or use stereoscopic views before making a definite diagnosis.

Physical Examination.—Generally normal except for absent ankle jerk and reduced knee jerk on right side; normal on left. Analgesia and anesthesia of lateral side of right foot and last three toes. Prostate not enlarged, but nodular and stony hard on right side.

Laboratory.—Urine: trace of albumin; few red blood cells and pus cells. Hemoglobin, 14.5 gm.; white blood cells, 8,700. Blood urea nitrogen, 10 mg. Acid phosphatase, 5.7 units.

Treatment.—Surgery: transurethral resection, vasectomy.

X-Ray Examination. — Pelvis (January 10, 1950): Showed a rather vague destructive process on the right side of the upper sacral segments: Conclusion: Carcinoma metastases.

Case 4.—J. R., a man, aged eighteen (Reproduction of x-ray failed to show lesion satisfactorily).

History.—Injury to lower back four weeks ago followed by pain in left thigh, radiating to ankle, with sciatic distribution. Requires cane for walking. Recent difficulty with micturition and defecation.

Physical Examination.—Tenderness to left of lumbar spine and over left hip, and along course of left sciatic nerve. Neurological examination negative.

Laboratory.—Urine, negative. Hemoglobin, 92 per cent; white blood cells, negative.

X-Ray Examination.—Lumbo-sacral spine (March 28 and April 1, 1946): Showed rarefied lesion in left wing of the sacrum due to some type of osteoclastic tumor.

Pathology.—Giant cell tumor (operation at University Hospital).

Case 5.—H. M., a man, aged fifty-six. (Reproduction of x-ray failed to show lesion satisfactorily).

History.—Weight loss, low back pain radiating down back of both legs to heels, progressive leg weakness for two months. (Patient sent to hospital with provisional diagnosis of ruptured disk. Scheduled for myelogram.)

Physical Examination.—Blood pressure, 150/70. Reflexes normal. Tenderness, left sacro-iliac region. Prostate hard, nodular, fixed: clinically a carcinoma of the prostate.

Laboratory.—Urine, negative. Hemoglobin, 10.6 gm. (64 per cent); white blood cells, 16,850. Acid phosphatase, 25 units.

X-Ray Examination.—Lumbar spine and pelvis (December 26, 1949): Multiple areas of osteoclastic metastases involving right side of second lumbar vertebra, right side of sacrum, left iliac bone, right acetabulum. Pathological fracture left ilium. Pelvis (February 22, 1950): Improvement of some lesions after deep x-ray therapy.

Case 6.—B, D., a woman, aged fifty-eight (Reproduction of x-ray failed to show lesion satisfactorily).

History.—For past eleven months has complained of stiffness and aching pain in the hips, particularly the right hip. These symptoms have progressed to the point where she requires crutches to get around. During recent months, she has had numerous medical consultations and various diagnostic studies, including an intravenous pyelogram which was normal and a lumber spinogram which was normal.

There was no history of injury. She has had no back pain. Occasionally she had pain in the right knee. No weight loss. Her general health appeared to be excellent.

Physical Examination.—Generally negative. There was some tenderness over the right iliac crest. Slight limitation of motion in right hip which is not constant.

Laboratory.—Urine, normal. Hemoglobin, 14.3 gm. (86 per cent); white blood cells, 8,300. Normal differential. The red blood cells showed a tendency to rouleaux-formation. Sedimentation rate, 43 mm./hr.; 40 mm./hr. Alkaline phosphatase, 4.5 units, 6.3 units. Serum proteins, 7.1 gm.; albumin/globulin, 1.6. Serum calcium, 10.5 mg.

X-Ray Examination.—Pelvis (January 5 and 6, 1950): Showed a sclerotic appearance of the wing of the right ilium suggestive of osteoblastic metastasis or lymphoblastoma. There was a disuse atrophy of the right femur. Biopsy of right ilium showed metastatic carcinoma.

Course.—The primary lesion was not discovered. She was given a course of deep x-ray treatments to the right side of the pelvis and received considerable relief from pain. Two months later she was re-admitted to the hospital in poor condition. She had anorexia, vomiting, abdominal distension. Repeat x-ray films of pelvis showed a spread of the metastases to both iliac bones and the lumbar spine. She expired on her fifth hospital day. Autopsy showed a flat carcinoma in the carina of the trachea which was interpreted as the primary lesion.

Case 7.—A. B., a man, aged fifty-five (Fig. 5).

History.—Pain in right hip, radiating down the back of the leg to the heel, for past two months. The pain has been getting progressively worse. No other symptoms in leg and no difficulty moving leg. No weight loss. Suffered from peptic ulcer for many years for which he had had a gastroenterostomy in 1940 and a vagotomy in 1949. Had a coronary occlusion in 1949.

Physical Examination.—Generally normal. No tenderness over back of right leg. No limitation of motion. Prostate normal.

Laboratory.—Urine normal. Hemoglobin, 6.9 gm. (41 per cent); red blood cells, 3,120,000; white blood cells, 11,250. Normal differential. Moderate anisocytosis, hypochromasia. Acid phosphatase, 2 units. Alkaline phosphatase, 5 units. Stool for occult blood, negative on April 2, 1950; positive on April 4, 1950.

X-Ray Examination.—Pelvis (April 1, 1950): Showed large osteolytic lesion of upper portion of right ala of sacrum, with some sclerosis of body of sacrum adjoining it. Conclusion: Metastatic carcinoma.

Gastrointestinal study (April 4, 1950): Duodenal deformity indicating old duodenal ulcer, and normally functioning gastro-enterostomy. Colon (April 4): Normal. Chest (April 4): Left ventricular enlargement. Lungs: Normal. Intravenous pyelogram (April 6): Normal. Retrograde pyelogram (April 13): Normal. Urogram (April 13): Normal. Gall bladder (April 15): Nonvisualization. Aspiration biopsy from right side of sacrum showed metastatic carcinoma. Sternal marrow aspiration showed no tumor cells.

Course.—Patient was given a course of deep x-ray treatments with some relief and discharged from the hospital. Primary lesion was not found. A year later, re-examination showed a spread of the lesion into the lumbar spine. Re-evaluation of the microscopic slides resulted in a new diagnosis of chordoma.

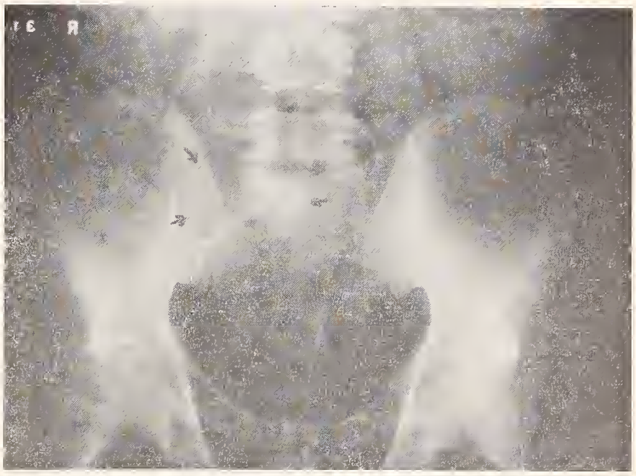


Fig. 5. Case 7. A.B. The osteolytic lesion in the right wing of the sacrum with adjoining sclerosis in the body of the sacrum is readily apparent. A year later this process had spread into the lumbar spine. The biopsy diagnosis was chordoma.

Case 8.—J. S., a woman, aged fifty-six (Reproduction of x-ray failed to show lesion satisfactorily).

History.—Backache and pain in left leg for three months. Attacks of pain begin as numbness of sole of left foot and pain in back. During the night the pain would become unbearable and would yield only to opiates.

Physical Examination.—Obese. Tenderness in left calf muscles. Positive straight leg raising—70 degrees on left, 90 degrees on right. Absent ankle jerk and plantar heel jerk on left.

Laboratory.—Urine normal. Hemoglobin, 13.9 gm.; white blood cells, 5,200. Spinal fluid protein, 134 mg.

X-Ray Examination.—No films made of lumbo-sacral spine because this had been done on the outside and reported normal. Myelogram on June 26, 1942, showed constriction of dural sac at lumbo-sacral junction, more marked on left side.

Course.—Patient was transferred to the University Hospital for laminectomy on June 30, 1942. On July 2, left hemilaminectomy done at level of L5—S1. A tumor mass was encountered in the muscles superficial to the laminae. Biopsy showed either Ewing's tumor or myeloma. Roentgenograms of pelvis on July 9 showed a large destructive lesion in the left wing of the sacrum consistent with metastatic lesion, or Ewing's tumor or myeloma. Skull x-rays normal. She was given a series of deep x-ray treatments from which she obtained some relief and was discharged on July 18, 1942. She was re-admitted on February 14, 1943, for intractable pain in the left leg. On February 15, a high thoracic cordotomy was done on the right side. On March 3 it was necessary to perform the same procedure on the left side for pain in the right leg. She died on June 24, 1943. No autopsy.

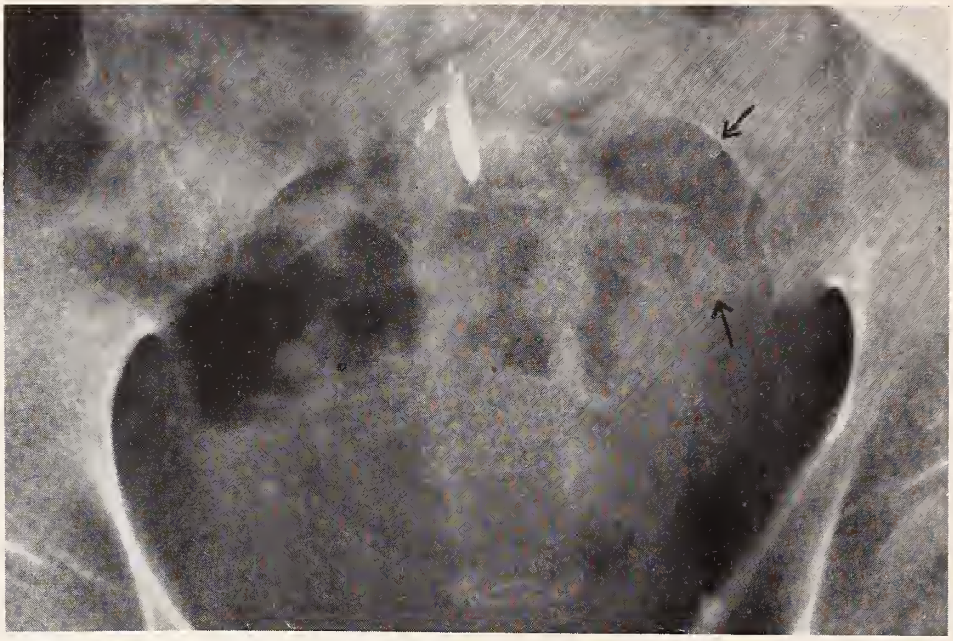


Fig. 6. Case 10. F. S. There is distortion and destruction of the upper inter-foraminal ridges on the left side of the sacrum. Clinically there was a large tumor mass at this site which bulged both anteriorly and posteriorly. Microscopic diagnosis was sarcoma.

Case 9.—R. H., a woman, aged twenty-six.

History.—Intermittent pain in right sacro-iliac region for past two years, with attacks lasting two to six days at a time. For past eight months, almost constant pain radiating down back of right leg, made worse by coughing and sneezing. Recently, considerable pain at tip of spine. In last three weeks, similar symptoms in left leg to less degree. Pain worse at night. Patient has had bronchiectasis since childhood. Rheumatic fever six years ago.

Physical Examination.— Tenderness over lower lumbar spine to coccyx. Sciatic nerve stretching tests positive bilaterally, especially on right.

Laboratory.—Urine normal. White blood cells, normal.

X-Ray Examination.—Spinogram (November 30, 1944, at St. Mary's Hospital): Showed a large mass displacing the dural sac posterior to the body of the fifth lumbar vertebra, probably an extradural mass. This may or may not be associated with a process involving the right sacro-iliac joint. Films not available.

Surgery.—On December 9, 1944. Tumor tissue encountered in muscles overlying sacrum. Laminae of upper sacral segment very thin. After laminectomy tumor tissue found in spinal canal on right side. Sacrum involved. Tumor extended up to fourth lumbar level in the spinal canal. Impossible to remove all of tumor.

Pathology.—Ewing's tumor (later changed to lymphoblastoma).

Course.—She was given a course of deep x-ray therapy, with relief. A follow-up letter five years later, March 7, 1950, disclosed that she was free of pain and apparently in good health. In April, 1951, she was re-admitted with reoccurrence of pain in the sacral region. Review of the microscopic slides resulted in a revision of the diagnosis to lymphoblastoma.

Case 10.—F. S., a man, aged thirty-nine (Fig. 6).

History.—In August, 1949, patient noticed dull pain in back aggravated by exercise. Pain gradually worsened over next month. Saw a doctor and had an intravenous urogram which was negative. In January, 1950, he took "adjustments" and heat treatments from a chiropractor, with temporary relief. In March, 1950, he again saw a physician who diagnosed sciatica. This was concurred in by an orthopedist.

He was hospitalized on May 15, and had a spinogram which was reported inconclusive. A lumbar laminectomy was done in June, 1950. No ruptured disk was found. He obtained slight relief for one to two weeks.

In July, 1950, a neurosurgeon noted spotty anesthesia and muscular weakness around the anus and lower buttocks. There was also anal sphincter weakness. In late July, 1950, his sacrum was explored and a small cyst was removed from the left second sacral nerve root. His left sciatic pain was completely relieved for several weeks. Then there was some recurrence of pain in left side of the pelvis and down the left thigh.

Physical Examination.—Moderate muscular atrophy in left thigh. Diminished sensation of perianal skin and inner thighs bilaterally. Diminished ankle jerks bilaterally. Diminished sensation on dorsolateral surface of

(Continued on Page 1091)

INTESTINAL OBSTRUCTION ASSOCIATED WITH FIBROCYSTIC DISEASE OF THE PANCREAS

Report of Three Cases

JAMES D. ROGERS, M.D., ARCHIE H. BAGGENSTOSS, M.D., JAMES E. MUSGROVE, M.D., and ROGER L. J. KENNEDY, M.D.
Rochester, Minnesota

INTESTINAL obstruction in infants with fibrocystic disease of the pancreas may be caused by inspissated meconium, by volvulus, by peritoneal bands, and by intestinal stenosis or atresia.

Our interest in these conditions was aroused by the difficulties encountered at operation in the third case to be reported herein. This report is made to bring the condition to the attention of surgeons and internists in the hope that the information contained will be of help to them when they are confronted by the condition and an emergency procedure is needed.

The association of meconium ileus with pancreatic cystic fibrosis was first described by Landsteiner in 1905. Subsequently Hurwitt and Arnheim, Kaufmann and Chamberlin and most recently Hiatt and Wilson have reviewed the literature.

Until recently fibrocystic disease[20] of the pancreas has generally been fatal in children. It is associated with dissimilar clinical pictures depending apparently on the variable ability of the individual to adapt himself to deficient pancreatic secretion. Evidence has been presented[2] that the nutritional difficulty begins at birth and that the pancreatic lesion is present at birth in most, if not all, cases. If this is true it must be assumed that the meconium is likewise abnormal, but it rarely produces complete obstruction unless there are associated intestinal lesions or anomalies. Of the three cases of intestinal obstruction herein reported only the first one represents uncomplicated meconium ileus. In certain patients living beyond the neonatal period the celiac syndrome may become manifest (large, pale, offensive fatty stools, abdominal distention, anorexia, wasting, stunting of growth and symptoms of deficiency disease) and is most obvious in cases in which death occurs after six months of age. Death in this group is precipitated by diffuse inflammatory pulmonary disease. Particularly in patients who die between birth and six months of age the outstanding symptoms are generally those of a chronic respiratory infection.

Report of Cases

Case 1.—A white male infant, one day old, was admitted to the Mayo Clinic on July 27, 1929. Birth had been normal. No stool or flatus had passed. The abdomen was moderately distended. On rectal examination it was believed that an obstruction might exist at the internal sphincter. Laparotomy was performed on the day of admission. Distended small bowel was encountered proximal to what appeared to be an area of obstruction in the ileum. An enterostomy tube was sutured into the distended bowel. After operation gas escaped from the tube, but liquid and solid material drained poorly. Occasionally small amounts of meconium were obtained with irrigations. The infant regurgitated and vomited all oral feedings, the content of which included particles of meconium. Death occurred August 1, 1929, the fifth day after birth. Prior to death many coarse râles were heard over the entire chest.

Necropsy.—Moderate jaundice was manifest. The jejunum and proximal portion of the ileum were dilated and contained meconium and bile. Fifty-five centimenters from the pylorus an ileostomy tube had been inserted and the distal portion of the ileum was collapsed. There was no evidence of stenosis or atresia at any point. The liver weighed 158 gm.

Histologic Examination.—All sections of the liver revealed atrophy of the liver cells with marked congestion of the sinusoids. Both the Kupffer and parenchymal cells contained an excessive amount of bile pigment. There were occasional bile thrombi in the biliary canaliculi. Numerous polymorphonuclear and a few eosinophilic leukocytes were observed in the periportal lymph vessels and connective tissue. Sections of the pancreas showed marked dilatation of many intralobular ducts and acini. (Fig. 1*a* and *b*). They were filled with eosinophilic secretion which contained a few polymorphonuclear and mononuclear leukocytes. The cells lining the dilated acini were flattened and had lost their zymogen granules. There was a moderate increase in both interacinar and interlobular connective tissue. The islets appeared normal.

The diagnoses were (1) recent (five days) ileostomy

Dr. Rogers is Fellow in Surgery, Mayo Foundation, University of Minnesota, Rochester, Minnesota; Dr. Baggenstoss is with the Section on Pathologic Anatomy; Dr. Musgrove is with the Division of Surgery and Dr. Kennedy with the Section on Pediatrics, Mayo Clinic, Rochester, Minnesota.

for meconium ileus; (2) fibrocystic disease of the pancreas; (3) congestion and atrophy of the liver with biliary stasis and (4) icterus.

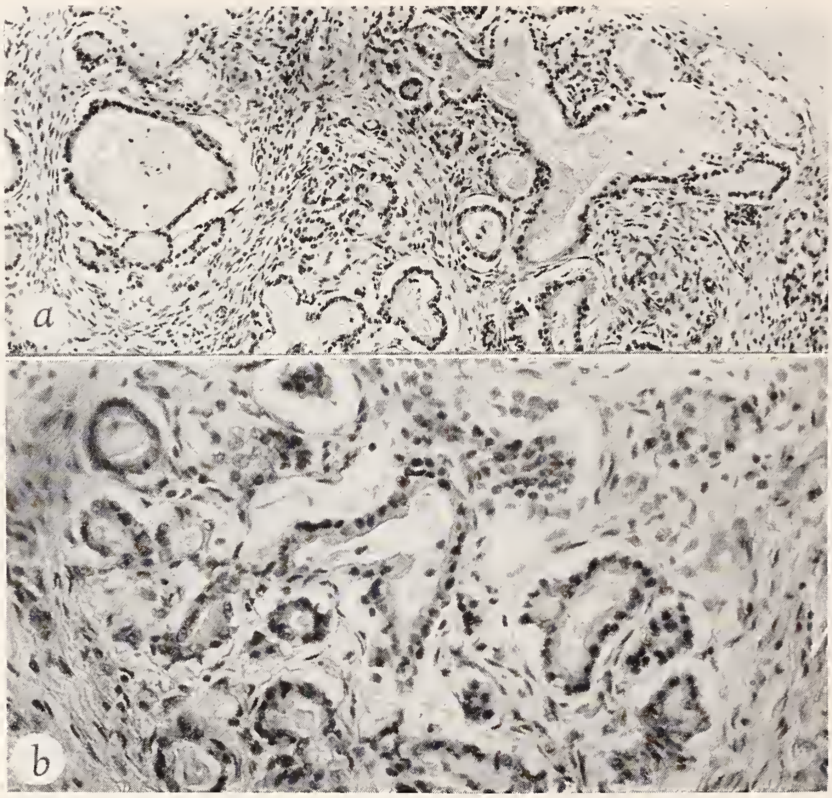


Fig. 1 (Case 1). Fibrocystic disease of the pancreas. Dilatation of ducts and acini with fibrosis (hematoxylin and eosin). (*a*) × 110; (*b*) ×240.

Case 2.—Within a few hours after an uncomplicated birth on November 9, 1946, a white female infant exhibited distention of the upper part of the abdomen. No stool or meconium was passed. Emesis of green material occurred on five occasions. The rectum was patent on digital examination. A roentgenogram of the abdomen revealed distention of the stomach and duodenum with fluid and gas, but no gas was seen in the intestinal tract below the ligament of Treitz. A diagnosis of atresia of the upper portion of the small bowel was made.

Laparotomy was performed twelve hours after birth. On incision of the peritoneum large, dilated loops of small bowel and many adhesions were encountered. The terminal ileum was ¼ inch (0.64 cm.) in diameter. Its patency, together with that of the colon, was demonstrated by injection of a saline solution. Twenty centimeters proximal to the cecum the ileum was completely atretic with no demonstrable lumen. At this site there was a large congenital opening in the mesentery with an associated volvulus wherein the terminal 15 cm. of dilated jejunum had twisted on itself for two complete turns. The bowel had perforated in this area and was found to be adherent to the fundus of the uterus. This attachment was separated and the portion of the small bowel in which atresia and the volvulus were situated was excised. An end-to-side anastomosis of the distal jejunum to the patent terminal ileum was performed.

Tissue removed consisted of 20 cm. of jejunum and ileum. There was congenital atresia of the ileum with ulceration and overlying peritonitis. The bowel proximal to the stricture was dilated and filled with thick, inspissated meconium (Fig. 2).

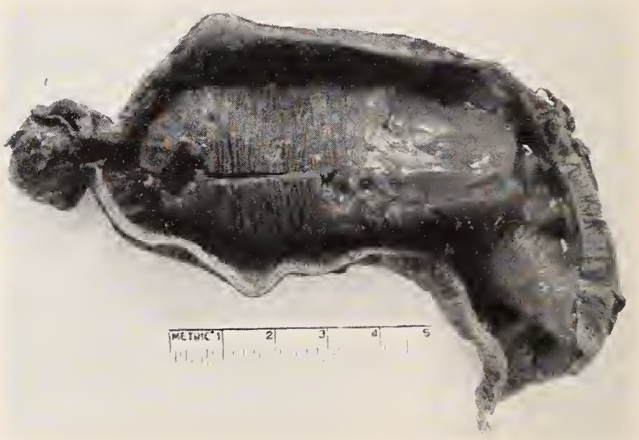


Fig. 2 (Case 2). Specimen removed at operation. Atresia of ileum, mass of meconium and dilatation and hypertrophy of proximal intestine.

The infant failed to pass flatus or stool following operation. Emesis of dark green material occurred on several occasions, and the abdomen continued to be distended. The child failed to respond to gastric suction and administration of plasma, blood and subcutaneous fluids and died on the fourth postoperative day.

Necropsy.—The peritoneal cavity contained about 50 cc. of watery fluid. The intestinal coils were attached to each other and to the omentum by a thick greenish brown exudate. The posterior portions of both lungs were collapsed and of increased consistency. The liver weighed 117 gm. and was greenish brown. There were superficial erosions of the mucosa in the lower third of the esophagus. Proximal to the anastomosis the jejunum was markedly distended. When the jejunum was opened a thick, greenish, pseudomembranous exudate was found covering the mucosa. In the stomach and also in the colon were masses of white putty-like meconium. The pancreas appeared grossly normal.

Histologic Examination.—Sections of both lower lobes of the lungs revealed a purulent exudate in the alveoli with colonies of bacteria. In the liver there were excessive amounts of bile pigment in the parenchymal and Kupffer's cells and bile thrombi in the biliary canaliculi. There was evidence of chronic passive congestion together with necrosis of cells in the central portions of many of the lobules. Sections of the esophagus revealed ulceration of the mucosa down to the muscularis mucosae. A fibrinopurulent exudate covered the ulcerated areas. Sections of the ileum revealed ulceration down to the muscularis mucosae. A fibrinopurulent exudate covered the ulcerated surface. Many polymorphonuclear cells and phagocytes were observed in the serosa. Examination of sections of the pancreas revealed dilatation of the acini and the small intralobular ducts (Fig. 3). These contained an eosinophilic secretion and a few sloughed epithelial cells. The lining epithelial cells of the acini were flattened and had lost their zymogen granules. The interacinar connective tissue was increased slightly.

The following diagnoses were made: (1) recent (three days) separation of adhesions, old peritonitis, congenital atresia of the terminal ileum and volvulus for which resection of portions of jejunum and ileum with jejuno-ileostomy had been performed; (2) general peritonitis; (3) fibrocystic disease of the pancreas; (4) pseudomembranous enteritis; (5) bronchopneumonia of both lower lobes and (6) biliary stasis of the liver.

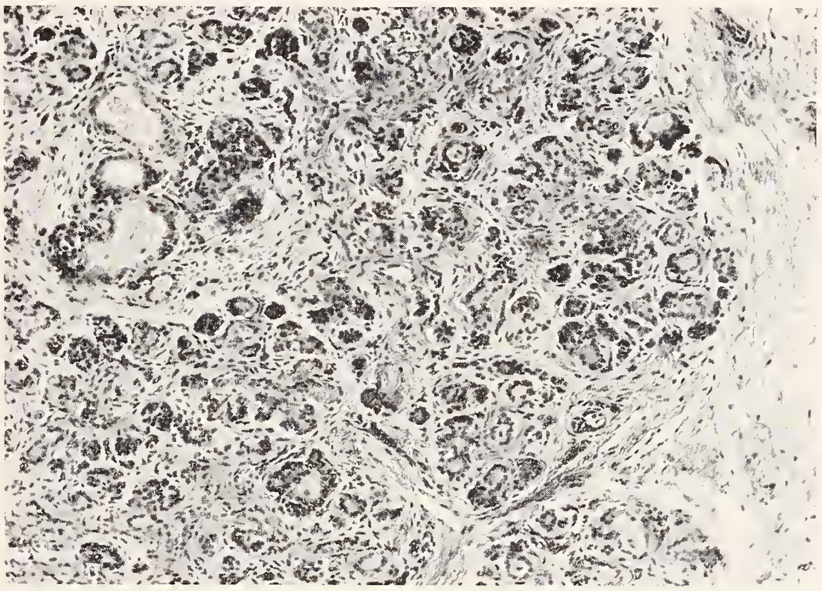


Fig. 3 (Case 2). Fibrocystic disease of pancreas. Dilated ducts and acini contain secretion. Interstitial fibrosis (hematoxylin and eosin ×110).

Case 3.—A white female infant, three days old, was admitted to the Clinic on September 1, 1948, with a tentative diagnosis of atresia of the rectum. The pregnancy had been normal and the delivery uncomplicated. The child had had no bowel movement, but had passed urine within twelve hours after birth.

Physical examination revealed a well-developed infant with a distended abdomen. The rectal temperature was 99.6° F. A tense mass approximately 2 cm. in width was found which seemed to be filled with gas. It occupied the cecal area and extended upward into the right upper quadrant of the abdomen. A firmer mass, parallel to this, was located on the left side of the abdomen over the descending colon. Audible peristalsis was absent. On rectal examination it was possible to insert the fifth finger without difficulty to a depth of 4 to 5 cm. at which distance a diaphragm-like obstruction was met; the center of the bowel, however, seemed patent. A small amount of blood was noted on the examining finger. In other respects the physical examination gave negative results.

Leukocytes numbered 18,500 per cubic millimeter of blood. The value for the hemoglobin and the erythrocytes and differential counts were within normal limits. A roentgenogram of the abdomen made after a catheter was inserted into the rectum demonstrated distended loops of bowel. From the lateral view it was evident that the catheter was posterior to the air-filled upper portion of the rectum. Radiopaque oil was introduced into the colon and the roentgenogram showed the colon to be well outlined and patent. A diagnosis of intestinal obstruction was made and meconium ileus was suggested as a possible etiologic factor.

At operation on the day of admission distended coils of small bowel presented themselves when the peritoneum was incised. The terminal half of the ileum was found to be distended to three to four times its normal size, while the colon was completely collapsed but lying in its normal position. The history, roentgenologic studies and previously mentioned operative findings all pointed to atresia of the ileocecal valve. A short incision in the distal portion of ileum confirmed this diagnosis, but also drew attention to the thick, tenacious meconium. All attempts to remove the obstructing meconium were unsuccessful. Another antimesenteric incision was then made in the ileum approximately 6 inches (15 cm.) cephalad to the ileocecal valve, in the hope that the terminal ileum could be stripped between the surgeon's fingers and thus its contents could be removed, but this attempt failed. The meconium could not be removed, the mesentery of the terminal ileum was torn and there was an atresia of the ileocecal valve. With these three difficulties it was decided to resect the distended ileum, cecum and proximal ascending colon and perform a side-to-side ileocolostomy. The child withstood the operation fairly well but the attempts to remove the meconium were too much for her and she died fourteen hours after operation.

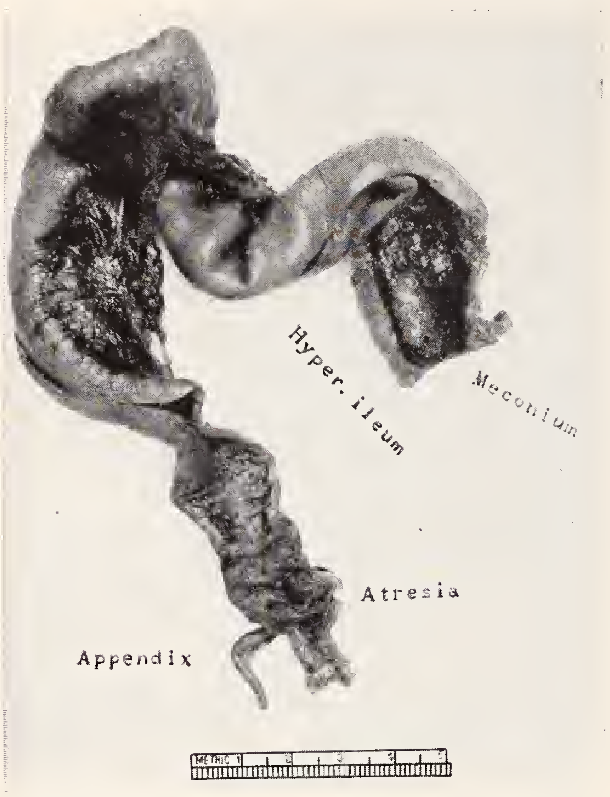


Fig. 4 (Case 3). Specimen removed at operation.

The specimen removed at operation consisted of 25 cm. of terminal ileum, cecum, appendix and 3 cm. of the right portion of the colon. The ileocecal valve was imperforate. The small intestine was dilated and contained sticky meconium (Fig. 4). The appendix measured 2 cm. in length and 3 mm. in diameter and was normal.

Necropsy.—The terminal ileum near the site of the anastomosis was hypertrophied and dilated and contained a strip of green, very firm meconium 25 cm. in length. There was focal congestion throughout the small intestine.

Histologic Examination.—Hemorrhages into the mucosa of the ileum were present together with slight dilatation of the intestinal glands. In the pancreas intralobular and interlobular ducts were dilated moderately. They contained eosinophilic secretion together with large numbers of polymorphonuclear cells (Fig. 5). A few acini also were dilated and contained polymorphonuclear cells. The interstitial connective tissue was increased in amount and contained many polymorphonuclear and mononuclear leukocytes.

The following anatomic diagnoses were made: (1) recent (one day previously) resection of the terminal ileum and cecum with ileocolostomy for congenital atresia of ileocecal valve and meconium ileus; (2) fibrocystic disease of the pancreas and (3) hypertrophy and dilatation of the ileum.

Comment

Use of radiopaque oil for roentgenologic examination is of definite value in the diagnosis of ileus of the newborn for it will determine the patency of the colon and will aid in the detection of malrotation of the bowel. Knowledge such as this, gained preoperatively, is of value in carrying out a well-organized, methodical examination of the intestine at the time of exploratory laparotomy. The radiopaque oil also distends and lubricates the collapsed distal portion of the bowel.

Pathologic Aspects

The appearance of the intestinal tract of cases of meconium ileus is rather typical although some variation may occur. The duodenum and jejunum are usually normal in size. The upper part of the ileum presents the greatest degree of distention. This is filled with a tenacious, viscid meconium which is frequently so mucilaginous that fingers and instruments are not easily extricated after contact. The ileum is gradually less distended caudad so that the lower third of the ileum is generally normal in size and contains meconium that is more firm and dry than that observed in the proximal part of the ileum. Inspissated meconium has been found not infrequently to extend beyond the ileocecal valve and to occupy either the greater part of the colon or one or more of its anatomic divisions. In a few reports the meconium responsible for obstruction has been confined exclusively to the colon. The large bowel may exhibit appreciable distention proximal to the obstructing mass, in which event the terminal ileum may likewise be distended. There are several reports of ulceration and perforation of the large bowel chiefly in the ascending colon or hepatic flexure associated with inspissated meconium at least part of which was obstructing the colon. Ulceration of the small bowel such as occurred in Case 2 has been observed less frequently.

Few gross changes have been noted in the appearance of the pancreas. The lobules may be rounded and uneven in size with infiltration of fat or increased fibrous connective tissue. The gland may appear firmer than normal and contain tiny, opaque, grayish-yellow nodules. The pancreatic ducts are usually dilated. Histologically the pancreas may vary considerably depending on the extent of the disease. Dilated ducts and acini are seen to contain varying amounts of coagulated secretion. The cells of the epithelial lining are flattened and may be squamous in type. The acinar parenchyma is atrophied and the interacinar and interlobular connective tissue is increased and may be infiltrated with lymphocytes or mononuclear cells. The islands of Langerhans are usually normal in size and number but may appear edematous.

The lungs of patients who live beyond the neonatal period and also have pancreatic changes almost invariably exhibit most of the following findings: (1) obstruction of the trachea, bronchi and bronchioles by thick, tenacious mucopurulent exudate; (2) emphysema and atelectasis, usually in combination; (3) suppurative bronchitis and (4) bronchiectasis with patches of bronchopneumonia and abscesses. Although in infants with meconium ileus one or more of the findings have frequently been reported, more commonly a pathologic description of the lungs has either been omitted from the reports or the changes have been less extensive in nature or degree. Likewise, in the older age group the mucous glands of the trachea, bronchi, esophagus, duodenum, jejunum and gall bladder and the acini of the salivary glands have been reported to be distended with a thick, inspissated material similar in histologic appearance to that observed in the pancreatic acini and ducts. Inspissation of biliary secretion, biliary cirrhosis, fatty infiltration of the liver and deposits of calcium in the kidneys have occasionally been described in patients who lived for more than a few months after birth. Occasional findings of a similar nature have been reported in infants with meconium ileus, but for the most part histologic descriptions of the organs have not accompanied the reports of these cases.

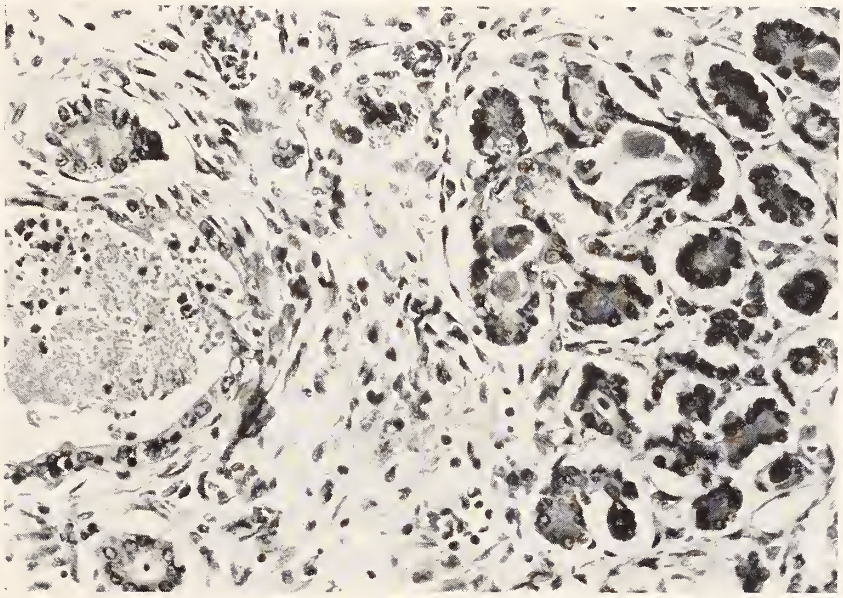


Fig. 5 (Case 3). Fibrocystic disease of the pancreas (hematoxylin and eosin, ×240).

Etiologic Factors

The cause of fibrocystic disease of the pancreas is in dispute. Its presence in the newborn and its early development in infants suggest a congenital origin consisting of stenosis or atresia of the pancreatic ducts.[6,14,15,16,18] In a recent study[5] obstruction of the pancreatic ducts was found in each of five cases in which serial sections of the papilla of Vater and the head of the pancreas were made. A definite familial tendency also favoring the congenital hypothesis has been observed.[4,7,13] The fact that congenital anomalies were present in the intestine and mesentery (Cases 2 and 3) suggests that the pancreatic lesion is also the result of a congenital malformation.

Blackfan and Wolbach[8] and Farber[11] have stated that an abnormally thick pancreatic secretion causes intrinsic obstruction in the acini and small ducts. Similar changes in other glandular structures already mentioned have suggested that meconium ileus is part of a generalized disease involving many glandular structures but with the greatest effect manifest in the pancreas. Because of the frequent occurrence of pulmonary lesions, the possibility that the disease resulted from infection, particularly of a viral nature, has been advanced but lacks supporting evidence. Vitamin deficiency is currently recognized as a complication rather than a probable cause of the disease. It is perhaps possible for such a deficiency to result in a keratinizing metaplasia of the epithelium of the duct with subsequent obstruction of the pancreatic ducts and of the respiratory passages by masses of keratinized debris, but this is a rare event. More than likely the early pulmonary lesions are the result of obstruction of the bronchi by thick, tenacious mucus.

Other etiologic factors which have been suggested are spasm in the ducts of the pancreas and other glands, a deficiency of mucinase or an autonomic imbalance in the activity of the pancreas and mucous glands any of which might tend to alter the normal composition of glandular secretion.

In any event it is generally agreed that meconium ileus in the newborn is secondary to a pathologic process of the pancreas and is manifest by the inability of the intestines to propel a thick, mucilaginous meconium, the altered physical state of which is explained by the failure of pancreatic enzymes, particularly trypsin, to act on it during intra-uterine life.

Treatment

Several reports[9,10] have been made on variable obstructive symptoms in newborn infants relieved by the passage of plugs of meconium with no significant sequelae. However, until the recent report of Hiatt and Wilson[13] patients who failed to respond to conservative measures or those on whom operations were performed for relief of obstruction all died as a result of either inadequate relief of the obstruction or from subsequent infection. In 1943, Farber[12] reported the first successful surgical procedure for the treatment of meconium ileus. He was able to remove the tenacious meconium from the bowel by irrigating the ileum with a 1 per cent saline solution of pancreatic extract. His *in vitro* experiments showed that when this abnormal material was placed in contact with saline solutions of pancreatin (1 to 10 per cent at 37.5° C.) it was quickly reduced to a liquid state. This observation provides evidence for the opinion that the lack of pancreatic enzymes is the chief factor responsible for meconium ileus. The infants on whom Farber corrected bowel obstruction later died from intercurrent infection.

In Hiatt and Wilson's report the intestinal obstruction was successfully relieved in five of eight cases of meconium ileus with proved cystic fibrosis of the pancreas. The three patients for whom this was not accomplished died within six days after operation, one of peritonitis, one of a devitalized loop of ileum and one of unknown cause as necropsy was not performed. One of the five patients whose obstruction was relieved died at three months of age of severe, bilateral pneumonia. The remaining four, and the only patients who had meconium ileus known to survive beyond a few weeks or months ranged in ages from three and a half to twenty-six months and were in good health barring occasional upper respiratory infections of a mild or moderately severe nature.

The successful technique employed by Hiatt and Wilson in overcoming the difficulty of removing the meconium, consists of placing a purse-string suture in the serosa and muscularis mucosae just proximal to the atrophic terminal segment of ileum at the point where the gut becomes dilated. An incision, 1 cm. long, is made into the lumen and a small catheter is inserted as far as possible toward the ileocecal valve. The suture is tightened and the terminal ileum is dilated with saline solution. When considerable pressure has been obtained the suture is loosened and the fluid and chunks of meconium are allowed to escape into a basin. This process is repeated in the distal and then in the proximal direction until all meconium has been removed. At this point a solution of pancreatin may be inserted through the catheter which is removed and the enteric stoma closed. Pancreatin, however, may be given as effectively through a nasogastric tube. Following operation the salient features in the successful management of the cases of Hiatt and Wilson have been: (1) low fat, high protein diet; (2) high vitamin intake; (3) pancreatin by mouth daily; (4) early use of chemotherapeutic and antibiotic agents to combat infection and (5) frequent examinations, including roentgenograms of the thorax.

Comment

Newborn infants with meconium ileus usually present evidence of advanced intestinal obstruction. Vomiting begins soon after birth, the vomitus contains bile and there is progressive abdominal distention. There is usually no history of the passage of meconium or stool. Pugh stated that Neuhauser made a correct preoperative diagnosis of meconium ileus in 4 of 10 cases by observing small bubbles in a medium of water density distal to the main column of gas in the upper part of the small bowel. Apparently these resulted from small quantities of gas being forced into the tenacious meconium. This picture was seen in three of the eight cases described by Hiatt and Wilson. However, it was not demonstrable by roentgenographic studies in two of our cases (Cases 2 and 3).

Case 3 of our series is the only case of meconium ileus associated with an imperforate ileocecal valve reported to date as far as we know. However, other anomalies including the atresia of the ileum exhibited in Case 2 have been observed frequently. Andersen[1] cited two cases of proved fibrocystic disease of the pancreas in which the patients died when less than one week of age. In one infant, multiple atresias of the ileum were noted; in the other atresia of the jejunum associated with additional congenital anomalies was found. Blackfan and May[7] reported four similar examples. In these cases with intestinal obstruction the possibility that the pancreatic changes are secondary has been considered. Dilatation of the pancreatic acini frequently accompanies intestinal obstruction in the adult.[3] In such cases, however, fibrosis is minimal or absent, and dilatation of the ducts does not occur. For these reasons the pancreatic changes in the cases reported herein are considered as representing true fibrocystic disease and not a phenomenon secondary to intestinal obstruction.

Volvulus was found in Case 2 and has not infrequently been observed in association with meconium ileus. It is presumed to result from excessive writhing of the characteristically elongated and hypertrophic coils of small bowel which are found proximal to the obstructing inspissated meconium. The peritoneal bands occasionally encountered (Case 2) have been attributed by Anderson and Hodges[2] to the peritoneal irritation which may occur after obstruction by meconium.

Summary

Intestinal obstruction in infants with fibrocystic disease of the pancreas may be caused by inspissated meconium, by volvulus, by peritoneal bands and by intestinal stenosis or atresia.

Until recently meconium ileus has generally been a fatal disease of infants associated with pancreatic insufficiency. However, many reports have neglected to observe the existence of pancreatic disease in intestinal obstruction of this nature since the condition was first described in 1905. Three cases of intestinal obstruction associated with fibrocystic disease of the pancreas encountered at the clinic were reviewed. The surgical technique and plan for the postoperative care of infants with meconium ileus recently developed by Hiatt and Wilson has been successful in several cases of this condition.

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THE TREATMENT OF CONGESTIVE HEART FAILURE

JOHN FRANCIS BRIGGS, M.D., F.A.C.P., F.C.C.P.
Clinical Associate Professor of Medicine, University of Minnesota
Saint Paul, Minnesota

FOR the purpose of this paper, congestive heart failure may be defined as that condition that results when the heart is unable to meet the circulatory demands placed upon it. There are a great many procedures and drugs to be used in the treatment of congestive heart failure, and when such procedures and drugs are used properly, they invariably bring about relief of the condition. The following outline for the treatment of congestive heart failure has been very satisfactory to us, and it is recognized that the procedures so outlined do not in any way exclude any other type of treatment that will bring about clinical relief to the patient suffering from congestive failure. This treatment is based upon the four "Ds."

Decubitus

The position of the patient at rest. The treatment of congestive heart failure necessitates the use of bed rest. Since these patients are already dyspneic, it is apparent that they must not be placed flat in bed, but rather should be allowed to sit in a semi-reclining position, or, if necessary, to sit in a chair with their feet elevated on an ottoman. Under no circumstances should the patient be expected to use a bedpan, for the effort of having the patient use a portable or a bedside commode is far less than any effort that can be expended on the use of the bedpan. Patients are maintained at bed rest until they are fully compensated or at least until the compensation has reached its maximum. At the end of this time, patients are permitted up on graduated exercises. They are first permitted to sit on the edge of the bed, dangling their feet for ten minutes four times a day. If no untoward symptoms appear at the end of two days, they are then allowed to sit in a chair for fifteen minutes four times a day. Should this cause no difficulty the patient is then permitted to sit up in a chair for one-half hour four times a day. Should this not cause difficulty, then the patient may be up at the end of another two days 45 minutes four times a day. There is a gradual increase in the length of time that the patient may sit up during the day, depending entirely on whether any untoward sign or symptom results from the increase in activity. When he is able to sit up approximately six hours daily, it is felt then that maximum timing has been reached, and the patient then can be placed upon his own judgment as to the length of time that he may sit up. He is warned, obviously, about fatigue, precordial pain, and any unusual symptoms that may occur. During the time of the graduated exercises the patient is permitted to go to the bathroom if it is on the same floor or in the same room. In addition, he is permitted to walk one-half block three times a day for three days. If there are no unusual symptoms because of this exercise, he may then walk one block three times a day for three days. He is gradually increased in this activity until he is walking essentially one mile three times a day. If at the end of this time he has no difficulty, then one can assume that he can increase his own activity according to his own needs and desires. He is, of course, again warned about reporting anything unusual which may occur as a result of his activity. In addition, at this time, the patient is permitted to walk a half flight of stairs three times a day, and if nothing accurs because of this, he then may increase it to a whole flight three times a day. Should this cause no symptoms or distress, he may then continue to walk the stairs as desired. The purpose of graduated exercise is twofold: (1) it enables the patient to regain his muscle tone which has been lost by confinement to bed; (2) it teaches us whether or not the patient will have and how much he will have of limitation in his activity. Obviously if the patient has no decrease in his activity as shown by the graduated exercises, he is not limited in activity after he leaves the hospitail. On the other hand, should the patient have limitation put on him by virtue of his heart defect, for example, that he may only be able to walk one mile daily before he develops discomfort, or if such a walk brings on anginal pain, or if he finds distress in walking stairs, then we must teach the patient that from now on he must

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live within this limitation of physical activity until further compensation can be restored. Although bed rest is extremely important in the treatment of patients with congestive heart failure, the remainder of the treatment revolves around the intelligent use of the three "Ds": Diet, Drugs and Diuretics.

Diet

In the treatment of congestive heart failure a diet low in sodium plays an important role. It is true that if one can obtain an absolutely sodium-free diet, he can then use water as a diuretic. The great danger, however, in the use of such a diet is that the inadvertent admission of even the smallest amount of sodium in the diet may precipitate very severe pulmonary edema or congestive heart failure. From the practical standpoint it is well to use the 400 mg. low sodium diet which can be prepared easily at home and which is reasonably palatable. In the use of the low sodium diet one must also be certain that the patient does not receive sodium in any of his medications and also that at this time he should have his fluid intake restricted to approximately 2,000 cc. of all liquids daily. This fluid restriction is not too great and the patient or a relative can be taught to keep an accurate account of the intake and output of fluids. If the patient is obese, then the patient should be placed upon a 1200 calorie low sodium diet and this diet maintained until adequate weight loss has been obtained. Since this diet may be deficient, it is well to supplement it with one of the multiple vitamin products.

Drugs

There are a great many drugs that are used in the treatment of congestive failure. Those that will be outlined here are those that we use, and we do not wish to infer that there are no other drugs which are useful in the treatment of congestive failure. The drugs are:

1. *Acidifying drugs.*—We limit our acidifying drugs to ammonium chloride. When the patient is seen the first time with acute congestive failure he receives 90 grains of Enseals of ammonium chloride daily for four days during the week. Once maximum diuresis has occurred and the maximum acidification has occurred, the patient can be placed on a maintenance dose of ammonium chloride of 15 grains three times a day four days out of the week. This maintenance dose greatly enhances the action of the mercurial diuretics.

2. *Aminophylline.*—In oral form aminophylline is not used because we find it ineffective in the treatment of congestive heart failure. Intravenous aminophylline in doses of 3¾ grains or 7½ grains given slowly is exceedingly efficient in the treatment of pulmonary edema, acute nocturnal pulmonary dyspnea, and other phases of congestive heart failure. Occasionally the use of the aminophylline suppository is also effective in the treatment and assistance of the patient with pulmonary edema.

3. *Anticoagulants.*—The anticoagulants that are used are two in number, either heparin or dicumarol. It is believed by many that anticoagulants should be used routinely in the treatment of any patient with congestive heart failure because these patients so frequently develop embolic phenomena. Should the patient have an immediate embolic accident, then it is necessary to give anticoagulant therapy immediately. This may be done in the following way. The coagulation time is determined, and a prothrombin activity time is estimated by the laboratory. The patient is given heparin 50 mg. in sterile water intravenously every four hours. This is continued with an attempt to keep the coagulation time between thirty and sixty minutes. The coagulation time is best determined every twelve hours. At the onset dicumarol is started immediately with a dose of 300 mg. the first day, 200 mg. the second day, and 100 mg. the third day. The heparin is continued for three days. At the end of the third day it is stopped because invariably the dicumarol has produced its effect, and we then attempt to maintain the prothrombin activity between 20 and 30 per cent of normal. The dose required for maintaining this activity must be determined empirically by varying the dose each day. One may avoid the intravenous use of heparin if one so desires by giving the patient an injection of 300 mg. of heparin in Pitkin's Menstruum and repeating it as needed. The dicumarol activity is continued until the patient is up and around, thus precluding the possibility of embolic phenomena as a result of the bed rest and con-

finement. If there is no need for emergency anticoagulant therapy, the patient may be started immeditaely on the dicumarol therapy as outlined, omitting the heparin from the treatment.

Cathartics are used in the treatment of congestive heart failure for the reason that we want as far as possible to have the patient avoid straining at stool. We use petrosyllium 1 ounce two or three times a day and adjust the dosage to the patient's needs.

4. *Digitalis.*—The treatment of congestive heart failure is almost entirely dependent upon the proper use of digitalis and its products. There are a great many forms of digitalis upon the market in the form of whole leaf preparations, purified glycosides and intravenous material. It has been our belief that one is best able to handle congestive heart failure if he uses the whole leaf product. We feel that there is only one important factor in the use of digitalis, and that is that the physician familiarize himself with one standard form of digitalis, learn all of its idiosyncrasies and all of its properties, and learn to use it intelligently. For our purpose we use three types of digitalis preparations. The whole leaf product we use is digitora, in which the 1½ grain tablet is equivalent to essentially 1 cat unit of digitalis. We use, as a glycoside, digitoxin, which comes in tablets of 0.1 or 0.2 mg. and the average digitalizing dose is about 1.2 mg. to 2 mg. For an intravenous preparation we limit ourselves entirely to cedilanid, in which 8 cc. injected intravenously is the average digitalizing dose. Since occasionally some patients have difficulty with digitalis preparations, it is necessary to have available some digitalis-like drug. Squill serves this purpose in the form of "urginin." This tablet is used the same as the digitora tablet. For the intravenous preparation we limit ourselves to ouabain, which is a strophanthin used in the dose 1/120 grain intravenously. The indication for the use of digitalis is heart failure. The contraindications for the use of digitalis are none. Occasionally the patient will have an idiosyncracy toward the drug, and when this occurs, then one of the digitalis-like drugs may be used rather than a digitalis preparation. The successful use of digitalis is dependent upon using the drug to its full digitalizing dosage and then maintaining this digitalis effect throughout the use of daily maintenance doses.

In order to facilitate the treatment of patients with congestive heart failure, the following scheme is suggested when one uses the whole leaf product such as digitora. For the average digitalizing dose, use 1 cat unit for every 10 pounds of body weight. Thus a patient weighing 180 pounds would be expected to require approximately 18 cat units of whole leaf digitalis (18 tablets of digitora) in order to become digitalized. It must be remembered that some people will become digitalized before the administration of the 18 cat units, and that other patients may require a great many more cat units than the 18 units suggested.

If the patient is not actuely ill, the dosage is administered as follows: The patient receives digitora grains 1½ four times a day for four days. During this time he will excrete essentially 1 cat unit of digitalis daily, so that he has lost in the four days 4 cat units of digitalis. Thus he has an active residual amount of digitalis of 12 cat units. He then receives digitora grains 1½ three times a day for three days. He loses 3 cat units during this time in his urine, so that he retains 6 more cat units of digitalis or an effective dosage of 18 cat units of digitalis. If he should become digitalized before this time, as manifested by a drop in the apical heart rate to 60 or 70 beats per minute and the development of profuse diuresis or the appearance of nausea, one may then feel that the patient has received adequate digitalization. If this has not occurred, however, then digitora grains 1½ three times daily is continued until such an effect has occurred. Once the patient is digitalized, he is then placed on a maintenance dose of digitalis, which on the average is digitora grains 1½ daily, but it may well be as high as digitora grains 1½ three times daily. The maintenance dose must be determined empirically.

If the patient requires rapid digitalization because he is acutely ill, one may use digitora in the following manner: Since the patient theoretically should require 18 cat units of whole leaf digitalis to be digitalized, we give the patient 9 tablets of digitora grains 1½ immediately, then in four hours 5 tablets of digitora grains 1½, and then, if not digitalized, give him the remaining 4 tablets of digitora. However, this method is not as efficient or as good as the next method, which entails the use of digitoxin.

Digitoxin is the most effective oral glycoside that we have. It is absorbed almost *in toto* and almost immediately from the gastrointestinal tract.

Since the average digitalizing dose is 1.2 mg., one may give the patient six 0.2 mg. tablets immediately and await digitalization. However, since digitalization may require more than 1.2 mg. of digitoxin, we prefer to give the patient the 0.2 mg. of digitoxin every half hour until the patient is completely digitalized. When digitalized, we then use a maintenance dose of digitoxin which is approximately 0.1 to 0.2 mg. daily.

If the patient cannot take the drug orally because he is vomiting or he is too ill, we then use intravenous cedilanid which is the most efficient preparation for intravenous use. One may give the patient 8 cc. of the drug immediately, but here we prefer to give the patient 4 cc. of the drug intravenously and then every two hours 2 cc. more intravenously until he is digitalized. The maintenance dose is 2 to 4 cc. per day.

In the use of digitalis the following *don'ts* should be observed:

1. Don't digitalize a patient rapidly if he has been taking digitalis previously.

2. Don't digitalize the elderly or the aged patient rapidly.

3. Don't rapidly digitalize a patient with a recent myocardial infarction.

If the patient has received digitalis previously, one may give him 1 cat unit of digitora three times a day until digitalization occurs. If digitoxin is used, we would use 0.2 mg. every three hours until the desired effect has been produced, and with cedilanid 2 cc. every three hours until the desired effect has been produced. In the aged and in patients with myocardial infarction the patient will often become digitalized much more quickly than is expected and usually with much less than the calculated dose.

4. The fourth *don't* is don't give the first doses of mercurial diuretics just at the completion of rapid digitalization. If one does, occasionally there is a remobilization of digitalis from the edema fluid into the circulating blood which produces a very severe toxic reaction. If one has not given the mercurial diuretic simultaneously with digitalis, then he should wait about two or three days after the patient has been placed on his maintenance dose of digitalis and then start the use of the diuretic very slowly.

5. The final don't is *don't* use intravenous calcium along with digitalization for it may produce rather bizarre and unexpected disturbances in the rhythm. It is important to remember that with the use of whole leaf digitalis one can never kill a patient with the drug taken by mouth, but one can kill a patient with intravenous digitalis. It is always well to remember also that with all digitalis more people have died from too little digitalis than have ever died from receiving too much.

Glucose is used in the treatment of congestive failure in two ways: (1) 1,000 cc. of 10 per cent glucose intravenously in sterile water in order to furnish nourishment and to produce diuresis; and (2) in the treatment of acute pulmonary edema to establish diuresis by giving 25 cc. of 25 per cent glucose intravenously.

Opiates are very important in the treatment of congestive heart failure, and we like if possible to use morphine sulphate grains ¼ with atropine sulphate grains 1/150. Should the patient be sensitive to the morphine or its derivative, then we would suggest the use of demerol or some other substitute. The drug is given as often as is necessary to allay apprehension and pain.

Oxygen.—Oxygen may be life saving to the patient with congestive heart failure. If the patient is anoxic, the oxygen may be administered by mask or by tent. It is necessary to point out, however, that in patients with emphysema or chronic cor pulmonale, the anoxia that is present is one of the mechanisms that enables the patient to breathe because the anoxia acts as a respiratory stimulant. Here the use of 100 per cent oxygen often precipitates the patient into apnea with respiratory acidosis and the patient thus may die. When a patient has emphysema or chronic cor pulmonale, it is probably better to give the patient oxygen, not in 100 per cent dosage but in oxygen mixtures and give it to him twenty minutes out of every hour.

Sedatives.—Sedatives are very important in the treatment of congestive heart failure. Here such sedatives as are needed should be given to the patient to relieve apprehension and anxiety. It must be again emphasized that the patient should not receive any of the sodium salts of the drugs, and bromides are absolutely excluded.

Diuretics

There are a good many mercurial diuretics that are efficient in removing edema fluid. They are salyrgan-theophylline, mercuhydrin or theomerin. In addition, there are oral tablets of mercurial diuretics such as oral salygran-theophylline and the oral preparation of mercuhydrin. At times it may be necessary to mechanically remove the fluid from the patient, such as one does in massive ascites or massive hydrothorax. In massive peripheral edema the use of the Southey tube occasionally will enable the patient to be comfortable.

Bleeding the patient when venous pressure is very high is also effective in the treatment of congestive heart failure, or one can do a bloodless venesection by the use of tourniquets around the four extremities and then release them progressively and slowly. We use salyrgan-theophylline largely for no other reason than we are familiar with the drug. We give the patient 1 cc. intramuscularly every day from the time he is seen until maximum diuresis has been established and until his weight has been maintained at a constant level. When this occurs, the interval between each injection is increased until we find a maximum number of days that can elapse before the patient begins to show a gain in weight and edema. At this time the patient receives routinely salyrgan-theophylline, either ½ or 1 cc. intramuscularly. We have discouraged the use of the oral tablet because it is unpredictable in its results, even though often very effective. In the instances where the diuretic must be used very often, or if the patient is not in a position to see a physician, frequently we teach either the patient or some member of the family to give the mercurial diuretic. The patient weighs himself daily, and at the first sign of weight gain he or a relative administers the mercurial diuretic.

Since congestive heart failure may be either acute or chronic, the drugs that have been outlined above are still those that are used in the treatment of congestive heart failure, be it acute or chronic. In the instance of a chronic form of congestive heart failure, the patient who weighs 180 pounds when first seen would be placed upon the following routine:

1. He would be placed in bed, a portable commode supplied to him, and he would remain in bed until maximum compensation had been established, then he would be permitted to be up on graduated exercises.

2. If he is obese, he would be placed upon a 1,200 calorie low sodium diet. Fluids would be restricted to 2,000 cc. a day. The fluid intake and output would be measured, and a multiple vitamin capsule would be administered. Ammonium chloride grains 15 six times daily would be administered for four consecutive days, then omitted for three days, and administered again for four consecutive days. This would be continued until the patient had maximum diuresis, and then the patient would be placed upon 15 grains of ammonium chloride three times a day for four days out of each week. Aminophylline would not be administered unless the patient was having a marked pulmonary edema or seizures of cardiac dyspnea or cardiac asthma. In this event the patient would be given 7½ grains of aminophylline intravenously as needed to relieve the symptoms. The anticoagulant drugs would not be administered unless there was evidence that the patient had had embolic phenomena or unless because of the appearance of varicosities or phlebothromboses it seemed likely that he would have an embolic accident. Should they be administered, they would be administered as in the outline given above. The patient would be given 1 ounce of petrosyllium three times a day until the stools were loose and mushy. The dose would be adjusted to maintain a loose stool. Digitalis would be administered in the method as outlined above. In the patient weighing 180 pounds and not acutely ill, we would give the patient digitora grains 1½ four times a day for four days, and three times a day for three days, and then if not digitalized he would receive one tablet three times a day until digitalized. When digitalized, he would receive one or two tablets daily to maintain the digitalization. Should he need immediate digitalization and could take the drug orally, we would give him digitoxin as outlined above, and if he were vomiting, cedilanid would be given as outlined. In order to produce diuresis it might be necessary in this patient to give 1,000 cc. of 10 per cent glucose intravenously or 25 cc. of 25 per cent glucose intravenously. Morphine sulphate grains ¼ with atropine sulphate grains 1/150 would be given every three hours for sedation and to allay apprehension. Oxygen would be administered, if needed, and sedation, usually in the form of mebaral grains ½ four times daily. Immediatly when seen he would receive 1 cc. of salyrgan-theophylline intramuscularly and this would be repeated daily as outlined above. Should it be necessary to bleed the patient, this would be

done, or if necessary, mechanical removal of fluid by the use of paracentesis, thoracentesis or the Southey tubes be instituted. The treatment would be continued until the patient had become compensated, and then we would retain the use of maintenance doses of digitalis, ammonium chloride with restricted fluid intake and the routine use of salyrgan-theophylline intramuscularly. In addition, we would teach the patient to live within the limits of his compensation and thus restore him to as much productive activity as would be compatible with the restoration of compensation.

Acute cardiac failure may also be termed cardiac asthma, acute nocturnal dyspnea or acute pulmonary edema, et cetera. It represents acute left heart failure. When seen the patient is usually very dyspneic, there is pulmonary edema and the patient is anxious and usually struggling for air. In these instances, the drugs as outlined above would be used as follows: the intravenous injection of morphine sulphate grains 1/6 or ¼ immediately. This is almost specific in allaying apprehension and depressing the irritability of the respiratory center so that the patient almost immeditaely receives relief. If the patient does not receive relief, he should then receive 7½ grains of aminophylline with 1 cc. of salyrgan-theophylline intravenously. One may follow this with 25 cc. of 25 per cent glucose. In elderly patients it is well to check the prostate for possible obstruction to the bladder neck; and if there is any likelihood that such obstruction is present, the patient should have an indwelling catheter to prevent acute urinary retention. Should a patient still be in failure, one can then rapidly digitalize him, using either digitoxin by mouth if the patient can take it without vomiting, or if necessary, cedilanid intravenously. Should these fail, one may occasionally relieve the patient by bleeding, and if the condition persists, he should then be supplied with oxygen. In any event, once the acute seizure has been relieved, it is apparent that since the patient has undergone an acute attack of congestive heart failure it will in all likelihood return, and it is, therefore, best to treat the patient now as you would if he had chronic congestive heart failure, using the methods outlined above and again depending upon digitalis, low sodium, restriction of fluid and mercurial diuretics to maintain compensation.

In summary, an outline has been given for the treatment of patients with congestive heart failure. It is recognized that there are many means of treating congestive heart failure and that there are many drugs that are adequate in not only relieving but also maintaining relief of a patient suffering from congestive heart failure. The important factors in the treatment of patients with congestive heart failure are that they receive proper diet low in sodium, that they receive proper fluid restriction, that they receive proper digitalization and maintenance of digitalization, and that the mercurial diuretics be used both therapeutically and prophylactically.

In conclusion, it must be emphasized that the treatment of congestive heart failure is time consuming and at times depends upon infinite attention to detail, remembering always that in the treatment of congestive heart failure he who goes slowly makes the most haste.

U. S. FUNDS FINANCE MEDICAL RESEARCH

At least 60 per cent of all medical research in this country today is financed with dollars from the federal government, divided about evenly between *staff work at U.S. institutions* and U.S.-supported projects *at non-government schools and laboratories.*

Furthermore, while Public Health Service still is the major source of U.S. research dollars, other government departments contribute many millions—in fact, about 47 per cent.

These conclusions are based on data available in Washington on medical research operations of Public Health Service, the military services, Atomic Energy Commission and Veterans Administration.

Here is an outline of the flow of feeral dollars for government and non-government medical research during fiscal 1951, ending last July 1:

1. Approximately $102,000,000 was spent on all types of medical research, public and private. The figure is based on actual government expenditures plus an estimate by Public Health Service of non-government expenditures.

2. The federal government's contribution to this total was $63,542,078, made up of $30,905,329 paid to outsiders and $32,636,750 spent directly on government projects. *The result was government financing of 62 per cent of all medical research during the year.*

3. All non-government research cost about $70 million, but 45 per cent of this was paid in federal grant or contract funds.

* * *

In addition to supplying 62 per cent of all funds for medical research, the *government spent another $27,066,659 during fiscal 1951 on the advance of medical science outside the federal government.* This money was paid out in grants by the Public Health Service for disease control programs in the states; for teaching, training and fellowship programs in medical colleges and universities; and for the construction of laboratory facilities in non-federal institutions.

—*A.M.A. Capitol Clinic,* Oct. 9, 1951.

NEW DEVELOPMENTS IN THE USE OF CORTISONE IN RHEUMATOID ARTHRITIS

PAUL J. BILKA, M.D.
Minneapolis, Minnesota

THREE years ago the first patient with rheumatoid arthritis was given cortisone (then known as compound E) in an attempt to favorably affect the course of this chronic disabling disease. The reactions that greeted the first reports of the wonders of this new drug ranged from unrestrained hope to frank disbelief. The three years that have since gone by have seen an unparalleled number of papers published concerning the actions of cortisone and ACTH. This has allowed for the tempering of the initial extreme reactions. Also during the last one year, since cortisone and ACTH have been generally available, all doctors have had the opportunity to observe for themselves the action of these drugs on patients with rheumatoid arthritis as well as many other disorders. And by now most of you probably have had at least one or two patients under your care who were given these agents, and you may have formulated certain conclusions regarding their place in your medical practice.

I shall report some of our experiences in the use of cortisone in patients with rheumatoid arthritis, and present a few tentative conclusions of practical value in managing these patients.

Immediate Antirheumatic Effect of Cortisone

The majority of a series of fifty patients with active rheumatoid arthritis had a prompt improvement in their aching, stiffness, and joint swelling along with a sense of well-being and a loss of their "toxicity" (Table I). The results will vary, of course, depending on the stage and activity of the disease process. One can expect little change in a "burned out" or severely ankylosed patient.

TABLE I

Marked relief (more than 75%)	65%
Moderate relief (50 to 75%)	15%
Mild relief (less than 50%)	20%

Effect After Cortisone Is Stopped

Table II lists the response of these patients to the cessation of cortisone therapy and their status at least one month later.

TABLE II

Immediate loss of improvement	50%
Slower loss of improvement	45%
Retained major part of improvement	5%

It is apparent that only a very few patients are able to retain the major part of the cortisone induced improvement. However, a much larger number are able to maintain at least some benefit, as an increased body weight or hemoglobin, or a straighter knee or elbow.

Attempts to Produce "Remissions"

In an attempt to increase the number of patients who might go into a remission as a result of cortisone therapy, the methods listed in Table III have been considered. With the exception of method 6, the combined use of cortisone and gold, the method of cortisone administration seemed to have little effect on the ability of the patient to retain his antirheumatic improvement.

TABLE III. METHODS OF CORTISONE ADMINISTRATION

1. Heavy dosage of cortisone
2. Alternate day administration
3. Repeated courses
4. Moderate dosage with gradual tapering off
5. Terminal administration of ACTH
6. Combined cortisone and gold

Twelve patients given cortisone* and gold** have been followed for over one month after the completion of a "course" of 2 to 5gm. (average 3 gm.) cortisone. The results are listed in Table IV.

TABLE IV

Remission	2
Excellent (50% residual improvement)	2
Good (25 to 50% residual improvement)	4
Little or no residual improvement	4

These figures are quite similar to those from the most reliable studies available on the results

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Presented at the annual meeting of the Southern Minnesota Medical Association, September 10, 1951, Rochester, Minnesota.

* Cortisone supplied through the courtesy of Merck and Co.

** Gold supplied through the courtesy of Schering and Co.

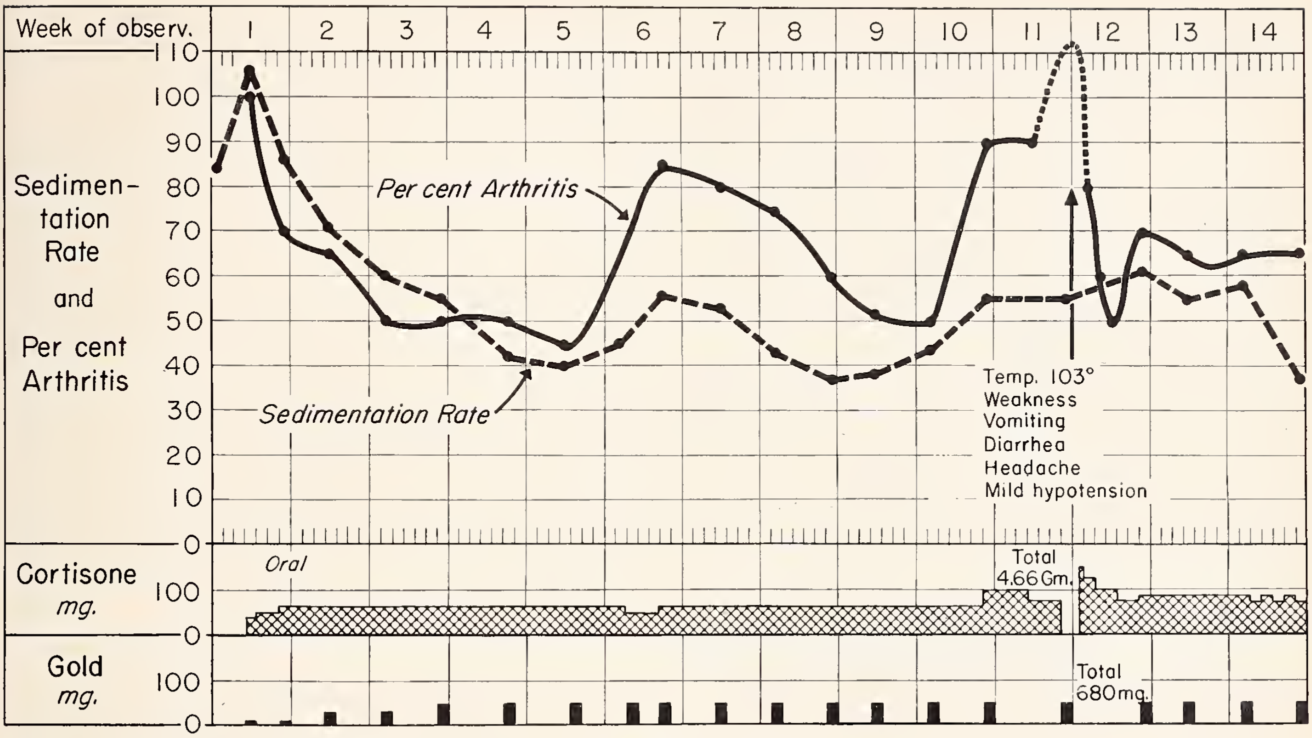

Fig. 1.

of gold alone.[1] They do not indicate any potentiation, nor do they indicate an inhibition by cortisone of the gold effect. In addition, there did not appear to be a lessened incidence of gold toxicity, for of twenty patients, two developed skin reactions requiring the cessation of gold while still receiving cortisone. Therefore, the usual precautions concerning gold salts administration are necessary with the combined program. This type of schedule appears to offer certain practical advantages in the management of some rheumatoid arthritic patients in that one can control the active disease with cortisone for the first two months or so and at the same time build up a sufficient gold effect which will be able to manifest itself in a significant number of patients soon after the cortisone is stopped.

Hypercortisonism and Complications of Therapy

Twenty-five per cent of all patients given cortisone showed one or more of the physiologic responses of excess cortisone administration. These reactions, consisting of fullness of the face, adema, striae, acne, mental stimulation or depression, glycosuria, et cetera, were all of a mild or moderate degree and were controlled by stopping or reducing the dosage of cortisone.

An almost similar percentage of patients showed a reaction that appeared to be independent of the cortisone dosage. This has been listed as a "complication."

TABLE V

Perforated duodenal ulcer (?)
Hemmorrhage from duodenal ulcer
Fractures
Ligamentous strains
Visual blurring
Post-therapy asthenia

The two gastrointestinal complications, occurring in a consecutive series of fifty patients, constituted an incidence of 4 per cent. Whether there is a true etiologic relationship of cortisone to duodenal ulcer is difficult to say. It would appear that convincing evidence of this is still lacking.[2] However, the ability of cortisone to mask the signs and symptoms of the complications of duodenal ulcer and specific infections as pneumonia, et cetera, seems indisputable. Therefore, it behooves the physician to be extra alert in watching for any complicating disorder in patients receiving cortisone therapy.

The fractures and ligament strains in our patients were believed due to their increased physical activity incident to the reduced joint pain and stiffness, and the sense of well-being, rather than any specific tissue action of cortisone.

A significant flare in their arthritis occurred in two patients immediately after cortisone was stopped. In both instances therapy was stopped rather abruptly after a previous dosage of 75 to

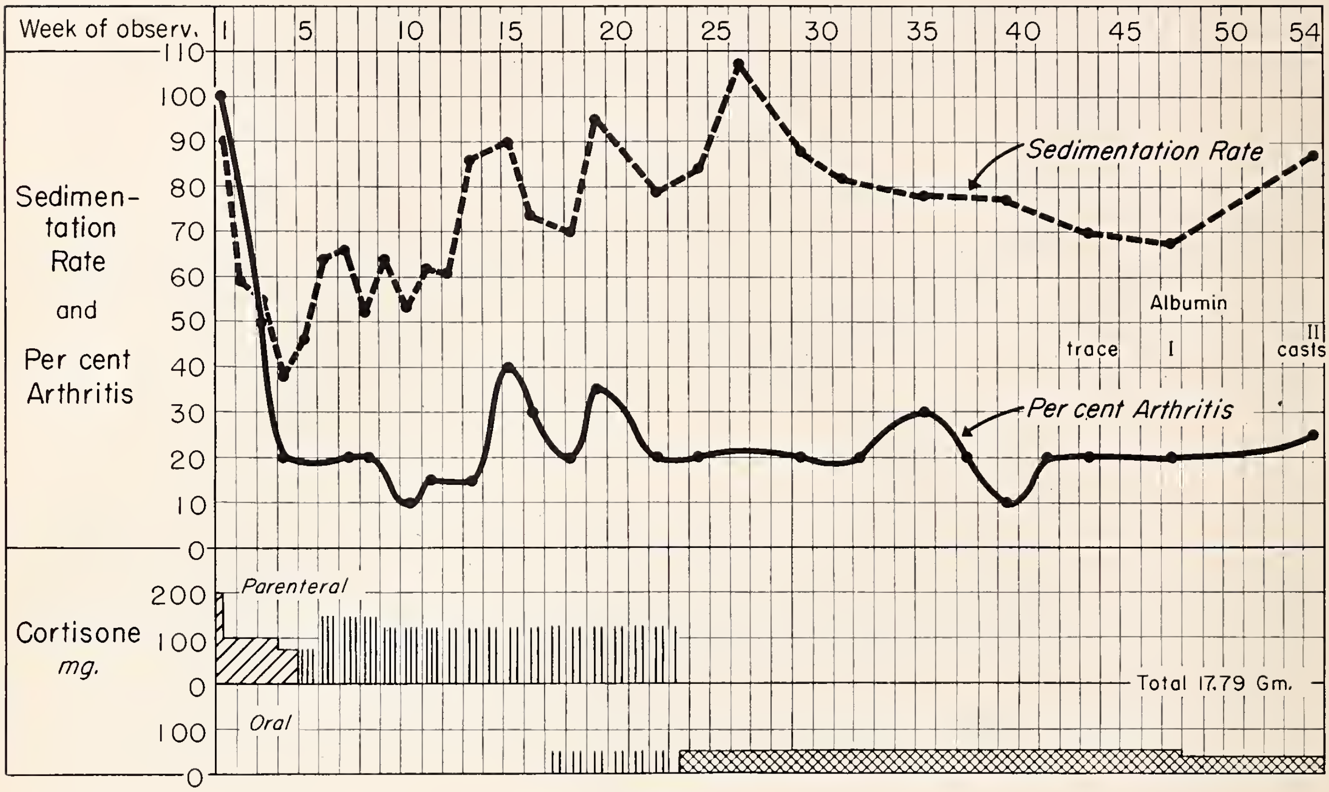

Fig. 2.

100 mg. cortisone per day. Figure 1 graphically illustrates the course of one of these patients. Twenty-four hours after her last dose of cortisone this patient had a severe exacerbation of all of her joint symptoms and in addition showed signs of acute adrenal insufficiency, namely: fever, weakness, anorexia, abdominal pain, nausea, vomiting, diarrhea and mild hypotension. She responded promptly with cortisone as her sole medication.

Maintenance Cortisone Therapy

Maintaining one's patient on continuous cortisone therapy is another alternative open to the physician. The two major problems to consider are: (1) the cost of medication and care; (2) the occurrence of side effects and complications. We have mentioned some of the side effects in the discussion of shorter term therapy. Whether long-term cortisone therapy will present any new or additional problems is hard to say. Figure 2 illustrates the course of a fifty-three-year-old woman patient who had been under continuous cortisone medication for over a year. In her tenth month of treatment she developed an albuminuria, which over the next two months increased in degree. Her urine then also showed granular and cellular casts. No hypertension had occurred. Cortisone was stopped and a complete urologic investigation was done, which was negative except for the albumin and casts. The Pauntz test for amyloidosis was negative. After thorough discussion with the patient and her family, cortisone was resumed in order to control the reactivated rheumatoid arthritis. The albuminuria and cylinduria have continued without change over the past two months. Her blood pressure and blood urea nitrogen remain normal.

Two other patients have been under cortisone therapy of almost a year's duration and have shown no renal changes. One of these patients recently has demonstrated complete unresponsiveness to the Thorn eosinophil test; however, his 17-ketosteroids continue at a normal level.

Cortisone in Association With Physical Medicine and Orthopedic Surgery

The use of cortisone as adjunctive therapy to physical medicine and orthopedic surgery has proved to be of great value in the care of the severe rheumatoid arthritic. Physical therapy is more easily tolerated, and with the active participation of the patient, flexion contractures, muscle atrophy, et cetera, can often be corrected with unexpected ease. Surgery can be performed in the disabled patient, whereas previously attempts at orthopedic rehabilitation had to be put off until one felt that the rheumatic process was completely inactive, and even then the fear of a postoperative flare was always present. The following brief case report illustrates this value of cortisone.

Mr. H., aged thirty-one, had rheumatoid spondylitis with ankylosis of the spine and both hips of fifteen years' duration. There was little active disease. The patient was given 100 mg. cortisone the day before and for fifteen days after operation for the right hip cup arthroplasty. The postoperative course was exceptionally benign. There was no muscle spasm, and the patient was so active in the use of his hip that it was put in a splint to restrict motion! Three days after cortisone was stopped the patient developed iritis of the right eye, but there was prompt response to cortisone after the usual measures failed.

The second hip operation was done without cortisone. There was a marked difference in postoperative pain and spasm. The patient required narcotics for two days and the extremity was placed in traction for over two weeks. There was moderate resistance to physical therapy when this was started, but this promptly improved on resuming cortisone.

In conclusion, I would like to offer the following four simple rules as a guide to the proper and safe use of cortisone in your patients:

1. Be sure of the diagnosis.
2. Make a complete appraisal of the patient.
3. Apprise the patient of the probable effects of the drug.
4. Closely supervise the program.

By observing these principles you will be able to offer to your patient, with minimal risk, the advantages which this truly remarkable drug allows in the management of the disabled rheumatoid arthritic.

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NEOPLASMS OF THE BONY PELVIS PRODUCING SCIATICA SYNDROME

(Continued from Page 1074)

each foot. Rectal mass palpable on left side, continuous with sacrum. This mass was firm, fixed and painful. A hard, fixed, non-tender mass, about 4 to 6 cm. in diameter, was evident over dorsal aspect of sacrum.

Laboratory.—Hemoglobin, 12.9; white blood cells, 7000. Blood urea nitrogen, 8.

X-Ray Examination.—Lumbo-sacral spine (November 16, 1950): Showed a mass in the left side of the sacrum enlarging and destroying the upper sacral foramina. The mass appears to penetrate both anterior and posterior sacral walls.

Surgery.—On December 3, 1950, a midline abdominal incision was made and a grapefruit sized tumor found attached to the sacrum. Microscopic pathology: Sarcoma.

Conclusion

Ten case histories and roentgenograms are used to illustrate the fact that some instances of sciatica are caused by malignant tumors in the sacrum and ilia. Five of these cases were carcinomatous metastases, with the primary lesions in the breast, prostate, and lung. There was one example each, of giant cell tumor, chordoma, Ewing's tumor or myeloma, lymphoblastoma, and sarcoma.

Neoplastic lesions in the bony pelvis, particularly in the sacrum, are difficult to recognize on the roentgenogram because of the almost universal presence of overlying intestinal gas shadows. However, they should be assiduously searched for in every case of sciatic pain. They can be identified by careful scrutiny of the individual sacral foramina and ridges. Interference by intestinal gas can be dispelled by repeated examinations (in which the distribution of the gas usually shifts) or by stereoscopic film examination.

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EARLY USE OF ACTH IN A SEVERE BURN

Report of Case

HENDRIK DE KRUIF, M.D., and NORMAN H. BAKER, M.D.
Fergus Falls, Minnesota

THE following report is concerned with the use of large doses of ACTH in the treatment of a severe burn from the very outset. Such a program was suggested to us by the remarkable result of Whitelaw[3] and by the motion pictures[1] illustrating his case.

Case Report

The patient, B. W., was a nine-year-old white boy whom we first saw on July 5, 1951, within an hour after he had sustained severe burns while pouring gasoline over a burning stump. There were second degree burns with massive blistering of the entire face, neck, ears, shoulder girdle and hands and of large areas on the right arm and right lower leg, an estimated 20 per cent of the body surface. The hair was singed to the length of a "crew cut," but there was no involvement of the scalp. There were third degree burns of the tip of the nose and chin, of the prominent parts of the right ear, of a round area 5 cm. in diameter on the right arm over the triceps muscle, and of the skin over the spine of the right scapula and the right mandibular ramus. In view of the manner of injury and the severity of the burns about the nose and mouth, there was good reason to suspect that the respiratory tract might also be involved. These suspicions were confirmed by later events.

Emergency treatment consisted of the immediate administration of morphine sulfate, gr. ¼, and the application of sterile vaseline and pressure dressings (gauze fluffs and ace bandages) to all burned areas. This was accomplished within half an hour of admission (within ninety minutes after the burn occurred); and most of the pain, tremor and agitation subsided along with completion of this treatment. Plasma was started within two hours as an emergency measure.

Physical examination revealed a very robust young boy with no abnormalities except the burns. The rectal temperature was 98° F., the pulse 100, the respirations 26, and the blood pressure (left leg) 118/84. The weight was 65 pounds (29.5 kg.).

During the next hour the following program of treatment was begun:

1. Aureomycin 500 mg. by mouth, and thereafter 250 mg. every four hours, for a total of 28.650 gm. in twenty days. During the first two days, most of the aureomycin was given by rectum; some was added to the intravenous drip.

2. Tetanus antitoxin 1500 units subcutaneously after a negative skin test.

3. Plasma, a total of 11 units (300 cc.) in three days. The first unit was given rapidly and the remainder by slow drip, continuously except for a temporary rest during the second night and the substitution of 5 per cent dextrose in distilled water the next day. The hemoglobin was 90 per cent (Sahli) fourteen hours after the burn occurred and remained close to this level during the acute stage. His lowest blood pressure reading was 124/54, about twelve hours after admission. His urinary output was 650 cc. in the first twenty-four hours, 870 cc. in the second twenty-four hours, and was always over 1,000 cc. per twenty-four hours thereafter.

4. ACTH (Armour): An initial dose of 25 mg. was given within the first two hours. Thereafter, the patient received 25 mg. intramuscularly every six hours for ten days, and the dose was then rapidly tapered off in the ensuing six days. The total dose of ACTH was 1,290 mg. in sixteen days. During the administration of ACTH there was no significant change in either the blood pressure or the weight. A strong (3+) glycosuria on the first day was attributed to intravenous glucose, and thereafter the urine never contained more than a trace of sugar. After the third day potassium chloride gr. 5 three times daily was given orally during the remainder of the course of ACTH.

5. Cortone (Merck): 5 mg. per cc. in a vanishing cream base was used on the more resistant areas during the period when ACTH was being tapered off.

During the first twenty-four hours the patient was able to take milk, eggs, soup and small amounts of water by mouth. Occasional injections of demerol, 50 mg., controlled his pain and restlessness. Then suddenly in the night, thirty-four hours after the accident, he began to have serious respiratory difficulty. This was accompanied by cyanosis, coarse rhonchi throughout the chest, a rise in the respirations to 48 per minute, retraction of the soft tissues of the thorax with inspiration, and the expectoration of mucoid material containing strands of mucus membrane of the respiratory tract. However, the lung fields were resonant. Despite conservative treatment—steam, oxygen by nasal catheter, morphine and atropine, and suction of the nasopharynx—his condition steadily deteriorated in the next five hours; and after two short spells of apnea a tracheotomy was performed with striking and immediate relief. The tracheotomy tube was required for only four days. However, the patient continued to cough up desquamated mucus membrane for about a week.

After the tracheotomy, improvement was rapid. The appetite returned almost immediately, so that he was on a full high calorie, high protein diet with supplemental vitamins by the fifth day. Two days later daily intramuscular injections of liver extract were begun and continued well into the convalescent period. Extreme restlessness during the first week was attributed to the heat and to itching of the face beneath the bandages. This was finally controlled somewhat by histadyl and surfacaine ointment.

On the fourth day the necrotic skin was debrided from the burned areas, and fresh vaseline pressure dressings

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From the Fergus Falls Clinic.

were applied. Dressings were changed daily thereafter. Beneath the necrotic skin there was very little weeping. The small amount of blister fluid appeared almost gelatinous in consistency. Except in the small areas of deeper burn mentioned above, there was already evidence of rapid epithelialization of the face, neck, shoulders and left hand. These areas were healed and left uncovered by the eighth day.

As was generally true of the right side, the right hand was more seriously burned than the left. At the initial debridement no viable epithelium could be seen on gross inspection. However, in the next six days epithelium spread rapidly from foci that were originally invisible. The right hand required no more treatment after the twelfth day.

The deeper burns of the nose and chin healed quickly because of their small surface. The area beneath the right mandibular ramus, about 7 by 2 cm. in size, filled in rapidly and divided itself into several small unhealed foci between the eleventh and sixteenth days. This was then treated with 1 per cent aqueous gentian violet.

The most stubborn areas were the right ear and the area over the right triceps muscle, both of which were involved in superficial low-grade infections. These responded to hydrogen peroxide, bacitracin ointment and then gentian violet during the third week. The last dressing was removed from the arm on the nineteenth day. By the twentieth day there was good eschar formation on the unhealed areas, and the patient was discharged from the hospital to continue the application of gentian violet at home. The burns were reported to be completely healed on August 12, 1951, thirty-eight days after the burns occurred.

Discussion

We have made no attempt to show that ACTH might replace accepted therapeutic measures in the case of a burn; but rather have used the hormone in conjunction with these measures. It remains to consider how the addition of ACTH to the therapeutic regimen may have affected the patient's condition in general and his skin in particular.

As regards his general condition, the patient reacted in a very mild manner when one considers the over-all severity of the burn. He was never in a state of shock. His urine volume was always adequate. His highest temperature was 101.2° F. by rectum on the second day, and he was essentially afebrile thereafter. Save for the second day, when he nearly died from respiratory obstruction and required a tracheotomy, his appetite was always good. Although his food intake was not calculated, he consumed enormous amounts of protein and maintained his body weight without detectable edema. His only severe discomfort was early itching of the nose and pain associated with the debridement of skin and the changing of dressings. Despite this early discomfort, the heat, heavy bandages and confinement to bed, his mental attitude and co-operation were always remarkably good.

The most striking feature of the case was the rapid resolution of the skin lesions. Large areas of second degree burns healed so soon that there was scarcely time for infection to develop. The rapid epithelialization of smaller third degree burns forstalled scarring considerably. What part may ACTH have had in the course of this healing? Sauer et al[2] have concluded from physiologic tests that ACTH increases the peripheral circulation in the skin. It seems likely then, that the use of ACTH *immediately after the original insult* might, by dilatation of the capillaries, tend to combat infarction of viable remnants of epithelium in the burned areas. The preservation of these small remnants—perhaps at the base of hair follicles—may throw the balance in favor of successful epithelialization. It will be recalled that ACTH therapy *was begun within two hours of the injury,* in this case. This may help to explain the astounding progress made by the patient in the first few days.

It was also observed that the oozing from the injured skin was much less than would have been expected in the absence of ACTH therapy. If this was also true of the respiratory mucus membrane, then ACTH therapy also helped the patient to survive his critical period of upper respiratory obstruction.

Summary

The case of a nine-year-old boy burned extensively by gasoline is here reported. ACTH in doses of 25 mg. every six hours was begun within 2 hours of the time of the burn. The results in this case suggest that ACTH, when used immediately and in conjunction with other therapeutic measures, profoundly shortened the course of healing, prevented scarring by rapid epithelialization, and perhaps made skin grafting unnecessary.

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THE ROUTINE USE OF TUB BATHS IN POSTPARTUM PERINEAL CARE

JANE E. HODGSON, M.D., AND LOIS A. DAY, M.D.
Saint Paul, Minnesota

ALL standard obstetrical textbooks in their discussions of postpartum perineal care give explicit and detailed instructions as to the use of perineal flushings with weak antiseptic solutions following each urination and defecation and at regular intervals throughout the postpartum period. Tub bathing is prohibited in the postpartum period for periods ranging from four to eight weeks. Booklets to the expectant mother repeatedly caution the patient against the use of tub baths in the late prenatal period as well. Titus,[5] Williams,[6] De Lee,[2] Beck[1] and McCormick[4] vary but little in their postpartum routine. Titus[5] advises: "Patients should be flushed with a weak solution of liquor cresolis saponatus followed by sterile water after each defecation or urination. This is done while the patient is still on the bedpan. This implement should be sterilized frequently, and in hospitals it is essential that each patient's bed and all of its utensils should be a separate unit devoted solely to that patient." According to *Williams Obstetrics,* as revised by H. Stander[6]: "Twice daily, after each movement of the bowels, prior to catheterization and before any local treatment or examination, the external genitalia should be cleansed with sterile cotton pledgets, using liquid soap, followed by 1:1000 solution of bichloride or oxycyanide solution, care being taken that the parts are washed from above downwards, the pledgets being discarded after a single application so as to avoid contamination from the rectum."

One can only wonder how this technique, unchanged since Semmelweiss, so cumbersome and time-consuming, has withstood revision. Like erysipelas, puerperal sepsis is fast becoming a disease of antiquity. In modern private obstetrical services, fever from endometritis is seen less often than fever secondary to breast abscess or thrombophlebitis. It is doubtful that modern eradication of postpartum pelvic infection is due to the cumbersome postpartum perineal routine in standard use, which routine has remained unchanged in the past sixty-five years. In July 1949, one of the authors (J.E.H.) herself underwent a normal delivery accompanied by the usual postpartum discomfort from the episiotomy. The relief of pain on the third postpartum day by twice daily tub baths was so remarkable that the writer immediately instituted their use in her obstetrical practice. Results were extremely gratifying, and this procedure has become a routine part of the postpartum care. Many fellow physicians in this locality are also using tub baths as a routine part of their postpartum care. At the Midway Hospital, Saint Paul, Minnesota, it is now estimated that 90 per cent of the obstetrical patients follow this routine.

Routine

On the first morning following delivery, the patient takes a fifteen-minute warm, soapy tub bath. This is continued twice daily until the patient is discharged from the hospital. The patient is furthermore advised to continue the baths at home as indicated for a sore perineum. It is possible to dispense with all routine nursing care, including external douches, flushings, bed baths, perineal lights, et cetera. A sterile perineal pad is used between baths.

Advantages

Marked Increase in Patient's Physical Comfort.—Physical comfort is obviously improved with the elimination of lochia and perspiration. The saponific action of the soap dissolves the dried and adherent blood and serum from the perineal skin. Analgesics required for perineal discomfort are greatly reduced.

Reduction in Nursing Care.—It is estimated that each patient requires at least one to two hours of nursing care per day to receive the usual and accepted perineal routine. The daily bed baths and the series of four to six external flushings require a great deal of nursing care. Providing a sterile bedpan, antiseptic solution, sterile cotton balls for drying, and perineal lights, as well as the equipment and maintenance of the cart for this equipment, obviously results in a rapid mounting of nurse-hours per patient. In contrast, tub baths require less than ten minutes for a nurse or aide to thoroughly clean and prepare the tub for the next patient. In a detailed motion study of standard perineal care, which was made by K. T. Hara,[3] former obstetrical supervisor at Maternity Hospital, Minneapolis, Minnesota, she concluded that seventy-five minutes of nursing care per patient per day were required to follow out the external douching method. The time required in the central supply room to sterilize and prepare supplies was additional. At Miller Hospital in Saint Paul, Minnesota, the supervisor and head nurse in the obstetric department estimate that "from forty-five to sixty minutes of nursing care per patient per day is saved during the first three postpartum days by giving the obstetrical patients tub baths." These conclusions are arrived at by: "(1) time saved by increased patient comfort, eliminating extra steps by nurse; (2) elimination of bed baths; (3) elimination of perineal care." During these times of critical nursing shortages, it would seem that in addition to the advantages to the patient, the saving of every nurse-hour is of paramount importance.

Improvement of Bladder Function.—It has always been appreciated that warm baths greatly improve bladder function and reduce bladder discomfort. Patients requiring catheterization in the postpartum period are practically nonexistent when tub baths are used soon after delivery.

Improved Wound Healing.—The episiotomy wounds are definitely improved by tub baths in the early postpartum period. The perineum is less indurated, and consequently the healing process is improved. Since beginning this routine, the writer has had no episiotomy breakdowns in over 400 consecutive episiotomies. Two episiotomy wounds had small hematomas, both of which were surgically evacuated. Neither wound broke down, but healed promptly, and the tub baths were not interrupted in either case.

Reduction of Rectal Discomfort.—Many postpartum patients are plagued with hemorrhoidal discomfort, and the warm, twice daily tub baths have done much to alleviate this condition.

Improvement of Patient's Morale.—A few isolated patients have been reluctant to begin this apparently unusual routine. After a bit of education and persuasion, every patient is thoroughly convinced of its value. The cleanliness, freedom from malodorous secretions and general sense of well-being improve the patient's morale. The esthetic advantages are definite, and the obvious difference in general well-being, as manifested by the "clean" tub-bathed patient versus the time-honored "sterile technique" patient, is quite marked.

Possible Disadvantages

Infection.—

1. *Local.*—As mentioned above, in this consecutive group of over 400 episiotomies, not one breakdown occurred; induration was lessened, and the marked increase in patient comfort would suggest that local infection is lessened.

2. *Pelvic Infection.*—The argument against tub baths, as given by the standard obstetrical textbooks, is the possibility of the entrance of infection through the vagina by contaminated bath water. Many questions arise at this point, such as the distance that the bath water traverses the birth passages. An effort to determine the distance that the water ascends into the vagina did not seem practical or possible, due to the marked individual variability in patulousness of the vagina and cervix, descensus of the uterus, flexion of the lower extremities while in the tub, et cetera. It seems unlikely that clean soapy bath water is more of a contaminant than are the dried lochial discharges contaminated with feces and urine that are inevitably present upon the perineal skin during the standard form of postpartum care. In the past, numerous culture studies have been made of the cervix and vagina during the postpartum period, all of which revealed this area to be far from being a sterile field. A comparison of cervical cultures in the tub-bath-treated patients as compared with a group treated according to standard postpartum procedures would be of interest; however, in private patients, such a study would be extremely difficult to carry out, and it was felt that a careful clinical appraisal was of equal or greater value in evaluating this new procedure.

Increased Postpartum Bleeding.—The possibility of warm tub baths increasing postpartum bleeding had been raised. An increase of uterine bleeding has not been noted in our series of cases. There was no evidence of postpartum hemorrhage or even excessive bleeding that could be attributed to the tub baths.

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PREVENTION OF POSTANESTHETIC NAUSEA WITH DIMENHYDRINATE (DRAMAMINE®)

D. KEITH MILLETT, M.D., and MYRON O. HENRY, M.D.
Minneapolis, Minnesota

THE anticipation of severe nausea and vomiting following general anesthesia and surgery often adds much apprehension to the already worried patient about to undergo a surgical procedure. It would give great mental comfort to the patient if his physician were able to assure him that he would not be nauseated, or vomit, and that he should be able to eat a full meal as soon as he is awake after surgery. This is the *art* of medicine. It is also the *science* of medicine.

The ophthalmologists, as pointed out by Stocker,[9] have a special interest in preventing nausea and vomiting after ophthalmic surgery since the retching and vomiting may so increase the intraocular tension as to produce disastrous surgical results. Otologists, also, have a special problem controlling extreme postoperative vertigo, nausea, and vomiting after labyrinthine fenestration operations. Campbell[2] has reported the effective use of Dramamine in these cases.

Gay and Carliner[3] were the first to report the use of Dramamine to control nausea and vomiting. While investigating its effectiveness as an antihistamine, they accidentally discovered its value in preventing nausea and vomiting of motion sickness. Their careful study of 1,366 soldiers aboard the *General Ballou* revealed that Dramamine was effective in both the prevention and treatment of the nausea and vomiting associated with seasickness. Strickland and Hahn[10] reported the effectiveness of Dramamine in decreasing the nausea and vomiting of air sickness. Beeler et al[1] used Dramamine in conjunction with roentgenotherapy and considered it effective in decreasing the frequency and severity of radiation sickness.

In light of these reports, it occurred to one of us (D. K. M.) that Dramamine might effectively control nausea and vomiting following general anesthesia and surgery. Our results clearly show that it is effective when used as part of the preanesthetic medication.

The manufacturers state that chemically Dramamine is β-dimethylaminoethyl benzohydryl ether 8-chlorotheophyllinate. It consists of diphenhydramine hydrochloride, commonly called Benadryl hydrochloride, which gives it its antihistaminic properties, and 8-chlorotheophylline, which has some atropine-like activities. The antihistaminic activity, as determined by the method of Loew[6] has been found to be about one and one-half times as great as the ether base. The spasmolytic activity, as measured by the technique of Magnus,[7] is less than that of the ether base. This is probably because it is relatively insoluble in water.

Gay and Carliner[4] found no evidence of untoward reactions in their group of over 300 men using doses of 400 mg. to 800 mg. per twenty-four-period.

The mode of action of Dramamine is not clearly understood. Stocker[9] has proposed that its effectiveness may be due to: (1) action on the labyrinth, (2) action on the vomiting center, or (3) action at a subcortical level by altering the abnormal afferent labyrinthine impulses.

Evidence is accumulating to indicate that its action is central rather than on the peripheral portion of the labyrinthine apparatus. Schiff[8] has likened the action of Dramamine to the action of morphine. Whereas morphine does not affect the peripheral pain receptors, but alters the interpretation of the pain at a subcortical level; Dramamine, also, probably does not affect the peripheral receptors (labyrinthine), but probably alters the central responses to the vestibular stimuli. On the basis of his own work, Winston[11] has suggested that, pharmacologically, Dramamine may be an antiacetylcholine agent when acetylocholine exceeds its normal physiological level.

We have used Dramamine as part of the preanesthetic medication in sixty-nine cases undergoing anesthesia for orthopedic procedures ranging from simple manipulations to major reconstructive orthopedic surgery in patients from two to eighty-four years of age.

The dosage of Dramamine was 50 mg. for children and 100 mg. for adults, given orally thirty to forty-five minutes before surgery. It may also be given rectally as a suspension in 20 cc. of isotonic saline. The only other preanesthetic medication was morphine, gr. 1/6, with scopolamine (or atropine), gr. 1/150, for an average adult. The anesthetic used was 2.5 per cent sodium pentothal

TABLE I. INCIDENCE OF POSTOPERATIVE NAUSEA AND VOMITING

	No. Cases	Post-operative Nausea	Post-operative Vomiting	Total Postop. Nausea and/or Vomiting
Without Preoperative Dramamine (control)	33	8 (24.2%)	8 (24.2%)	8 (24.2%)
With Preoperative Dramamine	69	4 (5.8%)	1 (1.4%)	5 (7.2%)

with four units of curare per cc. given intravenously and supplemented with nitrous oxide. The anesthetic time varied from five minutes to two hours and thirty-five minutes. An exact record was kept of any postanesthetic nausea or vomiting and the patient's ability to take food and fluids by mouth.

As a control group, thirty-three similar orthopedic patients immediately preceding this series were recorded and studied in a similar manner. Also, several patients in this series had had a previous anesthetic without Dramamine and thus served partly as their own controls. All of the patients were questioned concerning the occurrence of nausea and vomiting following their previous operations and were asked to compare their two postoperative experiences. Of the thirty-three patients who did not receive Dramamine as part of their preanesthetic medication, eight (24.2 per cent) complained of nausea and vomited one or more times postoperatively.

Dramamine was given as part of the preanesthetic medication to sixty-nine patients. Of these, four (5.8 per cent) complained of some nausea postoperatively, but did not vomit. One patient (1.4 per cent), a child who had received ether for a period of one hour and fifty minutes, vomited once. In this group, twenty-five gave a history of having had a previous anesthesia. Sixteen (64 per cent) of these twenty-five patients stated that they were nauseated and vomited following the previous surgery. After having received Dramamine preoperatively in this series, only two (8 per cent) of these same twenty-five were even slightly nauseated and none vomited.

The remarkable difference between the 64 per cent who gave a history of nausea and vomiting following previous surgery, and the 24 per cent of the control group (without Dramamine), is undoubtedly due largely to the effect of the different anesthetic agents used. Whereas most of the cases in this series received sodium pentothal and nitrous oxide anesthesia, many in that high 64 per cent received ether.

A full diet is ordered for all of our postoperative orthopaedic patients. Those who had received Dramamine preoperatively were usually able to take oral fluids as soon as they were well awake. At first, it was difficult to convince the nursing personnel to give the patients full, regular diets because they expected postoperative nausea and vomiting which has heretofore been so common. Dehydration was a transient problem in only two cases. In neither case was it due to nausea or vomiting.

One of us (M. O. H.) had a herniorraphy recently enough to receive the benefits of Dramamine as part of the preanesthetic medication. He was able to take water by mouth by the time he had returned from the operating room to his bed. Despite the fact that a portion of incarcerated bowel and omentum had to be dissected from the hernial sac, he was able to take a light meal two hours postoperatively without experiencing any nausea or vomiting.

We have had no untoward reactions from Dramamine used as part of the preanesthetic medication in over 100 cases. Drowsiness has been reported to be an infrequent side effect, but this would be difficult to evaluate in postanesthetic patients.

Conclusions

1. Dramamine is effective in controlling postanesthetic nausea and vomiting.
2. The use of Dramamine as part of the preanesthetic medication is a valuable adjunct to the *art* of medicine.

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President's Letter

"PREPAID VOLUNTARY HEALTH PROTECTION"

PREPAID health insurance has been growing very rapidly, although it has been in operation only a few years. Such is the report of Dr. George F. Lull, secretary and general manager of the American Medical Association, in his secretary's letter of September 14. He quotes The Health Insurance Council report that half of the nation's population at the end of last year was covered by some type of voluntary protection against the economic hazards of sickness and accident. All forms of such voluntary health protection scored tremendous gains in 1950. Hospital expense protection was extended to 76,961,000 persons. This was 17 per cent greater than just a year before. Great strides were also made by surgical and medical expense coverages in 1950. Surgical expense protection was provided to 54,477,000 persons at the end of last year, an increase of 32 per cent for the year.

Minnesota has kept pace with these gains. This state was a pioneer in offering Blue Cross to the public with Blue Shield following later, having been endorsed by the Minnesota State Medical Association. Minnesota Medical Service, Inc., showed a total enrollment of over 500,000 subscribers as of August 31, 1951. Minnesota Blue Shield plan is less than four years old. Blue Shield has endeavored to enlarge its program, meanwhile building up a safe reserve. This was possible because of a very low overhead. Physicians are helping greatly in making these plans a success. This growth in Blue Shield has been a very healthy one as each month's surplus has been added to the reserve fund to thus prepare for any possible emergency. Of this surplus, $900,000 is in government bonds.

One of the dangers confronting both Blue Shield and Blue Cross is overutilization. Members with contracts are prone to utilize hospital services for minor ailments. This adds greatly to the cost of Blue Cross It would seem that some system of education should be worked out whereby subscribers would be more interested in protecting their plan from overutilization. When this utilization approaches 100 per cent or is over 90 per cent, trouble is brewing. This may mean increased rates.

While sickness insurance is growing rapidly the directors of both plans feel that it is not as yet perfect. More study is being given this matter and the hope is that coverage can be extended to cover more medical cases, possibly even office cases without increasing fees too much.

The American people are well aware of the value of prepaid voluntary health protection. The gain in subscribers has been tremendous. The system is working well.

J. F. Norman

President, Minnesota State Medical Association

Editorial

Carl B. Drake, M.D., *Editor;* George Earl, M.D., Henry L. Ulrich, M.D., *Associate Editors*

PREMATURE MEDICAL PUBLICITY

PREMATURE medical publicity is an expensive and sometimes harmful procedure. It leads to self-medication which often follows self-diagnosis and may result in tragedy. It often causes heartbreaking disappointments.

We have dwelt on the subject of premature medical publicity before, but an article entitled "When Medicine Makes the Headlines" by Dr. Russell S. Boles of Philadelphia, which appeared in the *Saturday Review of Literature* (May 19, 1951), leads us to further consideration of the subject.

The desire of physicians to contribute something of scientific or medical value for the good of humanity—a perfectly praiseworthy ambition —leads them to present before a medical meeting or in a medical journal a new operation or treatment which in their opinion deserves further investigation. The new idea is picked up by a newspaper reporter or a journalist and is presented to the public, ever eager for medical news, as established fact. The patient goes, then, to his physician and demands the "low-down" on the subject and sometimes even demands the new treatment. It has been said that the physician of today must keep up with his news magazines and papers as well as his medical journals in order to answer his patients' questions. And he must often exhibit a good deal of backbone in resisting pressure to prescribe contrary to his best judgment.

As Boles mentions, the manufacture of penicillin increased from 21,192 billion units in 1943 to 133,229,493 billion units in 1949. In the case of streptomycin, the 1,174,582 grams produced in 1946 was upped to 83,699,137 grams in 1949. This is out of all proportion to indications for their use, and one reason for their overuse is that the public expects to have them administered for conditions for which they can serve no useful purpose. Penicillin, especially, is used for everything, with little consideration for the fact that it may cause reactions and may sensitize an individual so that future use may be futile or even dangerous. Aureomycin by destroying certain bacteria in the intestinal tract, may cause a vitamin deficiency besides being highly irritating to the digestive tract.

The anti-histaminic drugs, $100,000,000 worth of which were sold over the counter in 1950, are another example of premature publicity and overevaluation. The test of time has proved them of limited value.

The case of ACTH and Cortisone is another illustration of premature enthusiasm. While they may produce marvelous results initially, in certain cases they, as a rule, must be administered continuously to maintain their initial effect, and this is likely to cause side effects of a most dangerous character.

The remedy recommended by Boles to prevent this premature publicity is not new. He recommends that each county and state society possess a committee to which the lay press can refer. The existence of such a committee needs to be emphasized from time to time. There will always be, however, the sensational writer who is continually on the outlook for sensational material and is not too interested in accurate evaluation of medical news.

HOSPITAL CARE OF THE AGED NOT A FUNCTION OF THE FEDERAL GOVERNMENT

TO OPPOSE Federal Security Administrator Ewing's proposal to provide sixty days a year of free hospital care to all persons sixty-five or over who are covered by old-age and survivors' insurance of the Social Security system and their dependents may seem to some as hardhearted. Those over sixty-five are admittedly more liable to need medical care and are less able to finance it. The question is whether this is a proper function of the Federal Government.

Certain health activities which affect the nation as a whole are the function of the Federal Government and must of necessity be handled on a national basis. These include health inspection at the ports of entry and quarantine when necessary; control of narcotic traffic; activities of the

Pure Food and Drug Administration; care of the health of the armed forces; regulation of water supply as it affects the nation's health. Other activities, such as the care of the tuberculous and mentally ill, have come to be regarded as responsibilities of county or state—not the Federal Government.

We are aware of the frequent inequities of free medical care distribution, and have been factually apprised of the abuses of government-paid medical care systems in other countries, where often it is not the valid but the vociferous plea for medical attention that receives a priority.

If medical care of the people is a proper function of national government, how about the feeding also of the people which is a more essential need than medical care? How about housing, too? 'Tis true that the Government has already stepped into this activity which is distinctly a socialistic activity inconsistent with our traditional ideas of the function of national government.

Every time the Federal Government takes on a new activity in which it provides something that private industry can and has provided in the past, the public becomes more and more imbued with the idea that Washington can provide everything.

There are many activities in which the Federal Government is now partaking that are not the function of government. At a time when government spending is showing a deficit of billions yearly and the national debt is being increased to inconceivable heights, a pruning of activities which are not the business of the national government is vitally essential.

WRESTLING NO LONGER A SPORT

WE HAVE been waiting in vain for someone with a normal quota of decency to issue a protest against the wrestling bouts of today. When such exhibitions were limited to paid admissions, their influence was limited. With the advent of television, these contests which cannot by any stretch of the imagination be classified as a form of sport are transported into the home for the demoralization of the family members, the children particularly.

The value of sports in the school and on the playground in the training of youth in inculcating the ideas of good sportsmanship has been proven over the years. The television has great possibilities from an educational standpoint. Its use in the transmission of a modern wrestling match on the excuse of supplying public demand cannot be too strongly condemned. For the youth of this country to be fed a demonstration of a fight in which gutter tactics are used, not only by the villain but by the hero in self defense, is bound to have undesirable effects on impressionable minds. It matters not whether the so-called wrestling matches are rehearsed and the foul blows not as heavy as they appear; the ingenuity of the contestants is taxed to find new ways of producing torture and breaking the rules of the sport, if any, and the youthful spectators are pretty sure to try out such tactics with the mistaken notion that they are wrestling.

Call us "sissy," if you wish. We insist that wrestling has degenerated to the point that the present exhibitions can no longer be classified as sport. Unless the whole tone of these matches is altered for the better, they should be prohibited. The television industry which has grown so rapidly and has become national in its scope should most certainly bar wrestling matches until they are rescued from the gutter.

MINNESOTA MEDICAL FOUNDATION

The annual meeting of the Minnesota Medical Foundation was held at the Campus Club quarters at the Coffman Memorial building on October 4, 1951.

The Foundation was established in 1939 to facilitate the co-operation of alumni and friends of the University of Minnesota Medical School in improving the undergraduate, graduate and research functions of the University, to establish scholarships and, it is hoped, professorships eventually. The Foundation also publishes *The Bulletin of the Minnesota Hospitals and Minnesota Medical Foundation* which is sent to the Foundation members and other subscribers.

At an afternoon session held at the Medical Science Building which preceded the annual dinner meeting, four freshmen in the medical school: James R. Schuft of Verndale, a graduate of Hamline University; Omar A. Tveten of Waubun, a graduate of Concordia College; Gordon L. Backer of Luverne, a graduate of Macalester College; and James G. White of Minneapolis, a graduate of St. Thomas College, and six upper classmen in the medical school, Emery Johnson of Warren; Donald S. Mattson and Vernon D. Erickson of Minneapolis; Barbara Ann Ure of Forrest Grove, Oregon; Joseph W. Teynor of New Ulm and Charles L. Harris of Park River, North Dakota, were each presented with a $500.00 scholarship by Dr. Owen Wangensteen, President of the Foundation. The session was also the occasion of an address by Mr. John M. Russell, Director of the John and Mary R. Markle Foundation of New York which is devoted to the financing of medical research. The keynote of his address was the importance of medical education which is the foundation of the profession.

The membership committee of the Minnesota Medical Foundation under the chairmanship of Dr. Vernon D. E. Smith of Saint Paul has been very active during the past year. It has presented programs at approximately twenty meetings of county medical societies and hospital staffs, partially consisting of scientific talks, motion pictures taken and edited by Dr. Smith and including invitations to join the Foundation. At present the membership consists of patron members 36; life members 340, and annual members 339. It is not necessary to be a Minnesota alumnus nor even an M.D. to become a member. All friends of the Medical School and those interested in the Foundation's objectives are urged to join. Contributions may be mailed at any time to the Minnesota Medical Foundation, 3330 Powell Hall, University Campus, Minneapolis 14.

This year, the total receipts of the Foundation amounted to $81,463.12. Disbursements amounted to $93,382.85. While the Foundation is small, as foundations go, it has been growing in importance, and the funds it handles for various medical activities amount to considerable.

The activities of the Foundation are varied. It made the first gift to the Mayo Memorial Association with the stipulation that it be used to carry on the public educational work involved in raising the funds necessary for the Mayo Memorial Building. The Foundation also provided the first grant of funds to begin the well-known Minnesota Human Starvation Study in the Laboratory of Physiological Hygiene. The Foundation has lent support for many studies relating to such diverse subjects as heart and kidney disease, anemia, cancer, blood transfusions and others.

At the October meeting, Dr. Charles G. Sheppard of Hutchinson and Dr. R. S. Ylvisaker of Minneapolis were elected new members of the Board of Trustees. Dr. Wesley Spink, whose term expires, was re-elected to the Board, and Dr. J. Richards Aurelius of Saint Paul was elected secretary-treasurer to take the place of Dr. George N. Aagaard, who leaves Minneapolis January first to accept the deanship of the Southwest Medical School, Dallas, Texas.

INTESTINAL OBSTRUCTION ASSOCIATED WITH FIBROCYSTIC DISEASE OF THE PANCREAS

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HOSPITAL COSTS

Soaring hospital rates—it is estimated they are up nearly 150 per cent over 1937 levels—were explained in various ways the other day by superintendents of leading Chicago institutions.

While many things a hospital has to buy have not risen as much as its rates, labor, which accounts for about 60 per cent of a hospital budget, has gone up 165 per cent in fourteen years. Hospital managers pointed out, with fairness, that hospital help had been badly underpaid.

The superintendents did not attempt to make one obvious defense of hospital costs that can be made for them. If one is really sick, a bed or room in a good hospital is a bargain even at high prices.

The average patient forgets that he is getting considerably more for his money than bed and board. Back of the wards and the private rooms lies an intricate and costly machinery of laboratories, operating theaters and therapeutic equipment. Back of this is the medical know-how that aids diagnosis of his illness, speeds his recovery and in emergency may be the difference between life and death. A substantial part of today's bigger hospital bills actually represents the continuing advance in medicine. It is for the laboratory work that has replaced a lot of guesswork of an earlier day.

But it is human nature to resent expenditure connected with illness. We are so much happier buying something new than paying to regain our health in order to enjoy what we already have. Nobody wants to spend more than he has to on hospitals. *The obvious answer is hospital insurance, the prudent man's hedge against the uncertainties of tomorrow*—*Chicago Daily News*, Aug. 14, 1951.

Medical Economics

Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association
George Earl, M.D., Chairman

MATERNAL MORTALITY STUDY SHOWS MARKED IMPROVEMENT

Minnesota's maternal mortality rate shows a decrease of 89 per cent since 1915—a decrease which puts Minnesota in fourth place and tied with 10 other states. Minnesota's rate has always been at least 25 per cent below the United States average.

According to a recently published booklet by the Minnesota Department of Health, Minnesota's rate for 1950 was 0.58 deaths per 1,000 live births—44 maternal deaths. The rate in 1915 was 5.2 per 1,000 live births. This tremendous decrease was accompanied by a 27 per cent increase in the number of live births—75,337 in 1950. In 1949 the entire United States had a new low maternal mortality rate of less than 1.0 maternal deaths per 1,000 live births, making maternal mortality no longer a nationwide problem.

Study Called Potent Influence

The booklet points out that the reasons for continuing reduction in maternal mortality are ". . . increasing percentage of babies born in hospitals, more well-trained physician attendants to provide more adequate prenatal care, early diagnosis, and treatment of complications by antibiotics and blood, public health measures, including maternal mortality studies . . ."

Maternal mortality studies have played an important part in helping to improve Minnesota's rate. The first study was conducted in 1941 and 1942 and revealed a maternal mortality rate of 2.0 per 1,000 live births. The second study was made in 1950 and 1951, revealing a rate of 0.6 per 1,000 live births. These studies are to be continued at the request of the Minnesota State Medical Association. The bulletin reports:

> "Minnesota is one of four states carrying on such a study by a trained obstetrician investigator who interviews attending physician, hospital personnel, and others. About half of deaths studied have been considered preventable. Such a study is a potent influence in reduction of maternal mortality."

Breaking down the figures showing the decrease in maternal deaths, the Department of Health reports that "the largest part of this reduction in this thirty-year interval was due to the decline in maternal deaths caused by toxemia (88.4 per cent), followed closely by the decline in sepsis (88 per cent). . . . Another public health achievement that played an important part in the reduction in maternal mortality, as well as in infant mortality, was the marked increase in the percentage of births occurring in hospitals. In 1933, 43 per cent of all births in Minnesota occurred in hospitals; in 1949, 98 per cent occurred in hospitals. In 1936, physicians attended 96.7 per cent of the births; in 1949, physicians attended 99.8 per cent of the births."

Comment is made on the significance of this fine record by Dr. A. J. Chesley, Secretary and Executive Officer of the Department of Health:

> "We can justly be proud of these accomplishments, which are a result of many years of close co-operation between those providing medical services and facilities and the official health and educational agencies of Minnesota. The basic philosophy that preventive services as well as medical care are the responsibility of the local practicing physician has been well justified. Provision of accepted preventive medical services as well as medical care and treatment thus both become not only a right and a privilege but also a responsibility of the physicians and the allied professions. The significance of the results accomplished under this program is quite evident from the changes in maternal and infant mortality rates during the past thirty-five years. Three hundred and forty-eight Minnesota mothers and 3,400 Minnesota infants are alive today who would have died had 1915 mortality rates prevailed in 1950."

VOLUNTARY HEALTH INSURANCE GAINS ADDED SUPPORT

With the recent report on voluntary health insurance revealing important increases in coverage throughout the nation, come many new pledges of strong support for this democratic method of providing health protection. These sources have realized that government medicine would most certainly mean too many government controls. They have aligned themselves with those who know that the American free enterprise system has proved itself to be the most efficient and strongest way of carrying on American business. Doubtless they feel that such a free enterprise system should continue to work well in the medical insurance field, and not be replaced by the socialistic government controlled medicine, which has been found to be sadly lacking.

Showing its continued respect for the growth of voluntary insurance plans, the *Christian Science Monitor,* in a recent editorial, says that "private initiative can well be maintained in hospital, medical care and surgical insurance, as well as in temporary disability insurance to substantial degree."

The paper quotes Edmund B. Whittaker, vice-president of the Prudential Insurance Company of America:

> "The most significant recent social phenomenon in the United States has been the growing insistence of the public for social insurance protection. . . ."

The editorial lauds America's system of free enterprise and warns against American acceptance of government propaganda:

> "Free enterprise is so strong in the United States and has generally produced such outstanding results that its elimination in a large area such as this would properly encounter great resistance. . . . Future trends toward private enterprise or toward socialization are bound up in very significant degree with American attitudes toward social insurance. It behooves voluntary institutions to work out the best service possible, because if they fail to do so, government agencies may replace them. At the same time the public needs to discount unwarranted propaganda, often largely fostered by government officials, that government should occupy the entire field. There is a legitimate territory in social insurance in the United States which should be preserved for voluntary initiative."

ALL-OUT CAMPAIGN BEGUN FOR NATIONAL HEALTH INSURANCE

Attesting to the need for guarding against complacency, word comes from the Michigan CIO *News* that a new campaign is beginning to shape up "to educate public opinion and mobilize public support for national health insurance." The National Assembly for the Advancement of Public Relations pledged support to this campaign, charging the American Medical Association with 'deliberate falsification' when it describes President Truman's health insurance proposals as 'socialistic.'

If what the Assembly calls "sound and progressive Americanism" is Truman's government-controlled and costly health insurance scheme, then most cautious Americans can be led to believe that members of the Assembly have been misguided in their advocacy of socialized medicine. There is sound proof and sober logic to show that government-managed medical care plans can only lead to inferior service and an overburden of restrictive government controls.

MEDICAL CARE COSTS MISINTERPRETED

A semantic misinterpretation of recent years has brought about a major blight on the medical profession—that of making the doctor the symbol for high costs of everything connected with sickness. A new booklet, prepared for the California Medical Association by Ernest Dichter, Ph.D., a New York psychological consultant, states that "the term 'medical care' has far outgrown its original—and pure—denotation: the professional services of physicians and surgeons. 'Medical care' now loosely embraces every factor involved in the services, facilities and things attendant upon illness—doctors, nurses, hospitals, drugs, appliances." It is obvious that the medical society doesn't own the hospitals, the pharmaceutical houses, the prosthetic appliance factories, and cannot, therefore, be blamed for the increased costs of these goods and services. Dr. Dichter writes:

> "Physicians have no control over the national economy as it affects the costs of nursing, domiciliary and other services required by the sick. And yet both individual physicians and their medical associations continue to feel apologetic and to offer public apologies about the high costs of 'medical care.'"

"The only portion of the complex field of health resources that is under the absolute control of the doctor is his own service. In this, doctors can and should accept full responsibility for costs. As for those costs in comparison with the other costs of sickness today, they represent no greater, in many cases less, a burden to the family economy than they did in the days of the family doctor."

The booklet points out that today the doctor's services are more fully in demand and use, and that the patient is actually getting more for his money spent for medical care than he is for money spent for other goods and services. This is because costs of medical care have not risen as rapidly nor in proportion to costs of other goods and services.

Suggestions Offered for Correction

Dr. Dichter offers certain recommendations for doctors and medical societies to follow to correct this misinterpretation of the term "medical care":

"That the doctor stop apologizing for costs over which he has no control.

"That the medical association realistically make no attempt to change the public concept of the term 'medical care' as including the costs of all services and materials incident to the care and treatment of the sick, but

"That the facts be placed before the public (with sympathetic explanation of the problems of hospitals, nurses, pharmaceutical manufacturers, pharmacists and others whose economy is less flexible than the physician's) pointing out that medical and surgical costs have increased but little in the light of changed economic conditions and that because of this and the fact that doctors deny their services to none, regardless of ability to pay, the 'high and/or prohibitive cost of medical care' does not apply to fees of physicians and surgeons."

BRITISH SURGEON CITES HEALTH PLAN PITFALLS

Speaking at the annual convention of the International College of Surgeons, a "humble member of the medical profession working hard at practical surgery in the heart of London," told surgeons that the costs of the National Health Service in England have far exceeded all estimates that were made before and during the time it took effect four years ago.

Dr. A. Lawrence Abel said: "The exchequer has at last realized that my country cannot afford to make available the unbridled use of such as essential service. Whereas last year the health service cost nearly one billion, five hundred million dollars, they have now imposed an arbitrary ceiling of under one billion, two hundred million dollars . . . and a few weeks ago ordered that 50 per cent of the cost of dentures and spectacles should be paid for by the patient."

Instead of giving doctors more time for the care of the health in addition to the illnesses of the people, Dr. Abel said that the British health service has forced the doctors to become overworked, requiring them to carry on too much non-clinical work, causing clinical work to suffer. Relieving the doctor of the financial part of medical treatment was supposed to free him to see patients earlier in the course of their illness, and "would bring him into more intimate touch with the normal and near-normal." Instead the near-opposite has occurred, according to Dr. Abel's report. Dr. George F. Lull, Secretary of the American Medical Association, commented on his remarks:

"I found his personal remarks and the thoughts expressed in his speech quite depressing because the pitfalls he recited are the same pitfalls strewn in the path of the medical profession in this country by vote-conscious politicians in their efforts to enact some form of compulsory health insurance. Like in England, they promise the sky, knowing full well from British experience that they cannot deliver."

THE MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

230 Lowry Medical Arts Building
Saint Paul 2, Minnesota

Julian F. DuBois, M.D., Secretary

SAINT PAUL MAN PAYS $1,000 FINE IN MINNEAPOLIS COURT IN ABORTION CASE

Re. State of Minnesota vs. Frank H. Masterjohn

On September 27, 1951, Frank H. Masterjohn, forty-two years of age, 24 W. Sycamore Street, Saint Paul, paid a fine of $1,000 in the District Court of Hennepin County, following a sentence that was imposed by Judge D. E. LaBelle of the District Court, on September 25, 1951. Masterjohn was given his choice by the Court of serving one year in the Minneapolis Workhouse, or paying the fine of $1,000 within five days. Masterjohn was charged with the crime of abortion. Masterjohn entered his plea of guilty on May 24, 1951, but the imposition of sentence was deferred by the Court until September 25.

Masterjohn was arrested on May 8, 1951, following an investigation ordered by the Minnesota State Board of Medical Examiners after it had been disclosed that a 22-year-old Benton County girl had been hospitalized at St. Cloud, suffering from the after effects of a criminal abortion. Masterjohn admitted to the Court that he had performed eight or nine abortions in the home of one John E. Capra in Minneapolis. Masterjohn was paid $250 for the last abortion dividing the money on the basis of $110 to Capra, who referred the case to him, and keeping $140 for himself. Capra was placed on probation by Judge Knudson of the Hennepin County District Court for his part in the abortions. Judge LaBelle, however, told Masterjohn that he was engaged in a "rotten occupation," and that the Court was going to take the profit out of the abortion racket.

The Minnesota State Board of Medical Examiners wishes to express its appreciation for the very fine cooperation given in this case by certain members of the medical profession and hospital authorities who learned of the activities of the defendants Masterjohn and Capra.

Medical Board Concludes Initial Investigation of Complaints Concerning Welfare Cases

The Minnesota State Board of Medical Examiners, following an investigation of specific and general complaints in connection with the furnishing of medical care to recipients of public relief, wishes to bring to the attention of the medical profession generally, certain abuses on the part of a relatively small number of physicians.

In October 1950, at a meeting held at the office of the Director of Social Welfare of the State of Minnesota, certain medical problems were discussed with the Medical Service Committee of the Minnesota State Medical Association. At that meeting it was alleged that certain doctors were having ambulatory cases call daily at their office and that the various welfare agencies were being charged excessive amounts for such unnecessary calls and for unnecessary and needless medication and operative procedures. Following that meeting the matter was referred to the Minnesota State Board of Medical Examiners for investigation into specific cases. The Minnesota State Board of Medical Examiners has concluded the first phase of its investigation and is unanimously of the opinion that certain recipients of relief were seen needlessly on numerous occasions. While the Minnesota State Board of Medical Examiners appreciates that there are cases in which a difference of opinion may exist as to the necessity of seeing a patient daily, there are cases in which there can be no difference of opinion. It is only with the latter group of cases that the Minnesota State Board of Medical Examiners has concerned itself. The Medical Board has pointed out to the physicians concerned that the entire medical profession must be scrupulously honest in rendering medical care and that the test applies to patients who are recipients of relief as well as to so-called private cases. The medical profession owes this duty, not only to the patient, but to the taxpayers who pay the bill, to the Legislature of Minnesota, which makes the service possible, and to those who administer the various relief programs. The Medical Board believes that the most hopeful sign in the entire matter, is the candid way in which the physicians concerned discussed the various cases with the Medical Board. There was no hesitation in the frank admission that, perhaps, some of the cases were seen too frequently, and that not enough thought was given to the problem generally, which is to have good quality medical care readily available to a recipient of relief at a fair and reasonable cost to the various political subdivisions which are required to pay for such services. The system of free choice of physician for a recipient of relief which Minnesota was a leader in developing, will not survive unless all members of the medical profession recognize their duty in the handling of these cases.

The Minnesota State Board of Medical Examiners dislikes very much to emphasize the fact that physicians who depart from the high standards of the medical profession, including complete honesty in the rendition of medical care to recipients of relief, jeopardize, not only their standing in the medical profession, but with the public generally, and their license to practice medicine as well.

It is the hope of the Minnesota State Board of Medical Examiners that this matter will be thoroughly discussed within the various county medical societies. The matter is one that can be handled effectively at the local level with the assistance of the county Medical Advisory Committee. In the future the Minnesota State Board of Medical Examiners will take such disciplinary action as is warranted by the facts, in the event any such complaints are made to the Board.

ROUTINE USE OF TUB BATHS IN POSTPARTUM PERINEAL CARE

(Continued from Page 1095)

Possible Lack of Bathing Facilities.—On the obstetrical floors of some hospitals there are only showers or very few bathtubs, so that it is impossible to allow all of the patients to follow the tub-bath routine. At one hospital in which tub bathing has become popular for postpartum care, the saving in nurse-hours has been so outstanding that new tubs are being installed voluntarily by the hospital.

Summary

A safe, comfortable, simplified and time-saving method of postpartum perineal care by the use of routine tub bathing is presented. This new routine is highly recommended on the basis of clinical results, rather than any scientific data. To any obstetrician trying this method on even a small series, the numerous advantages will be self-evident.

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In an era when the chronic diseases and the health problems of the aging are beginning to draw increasing attention, we can profit greatly from the experience of tuberculosis control workers. Tuberculosis has many characteristics in common with such diseases as heart disease, diabetes, and arthritis, as far as program considerations are concerned. These include the prospects of early diagnosis, the important social and economic components, the possibility of extended periods of hospitalization, and the necessity for rehabilitative and restorative services.—Joseph W. Mountin, M.D., *Public Health Reports,* Feb. 2, 1951.

◆ Reports and Announcements ◆

AMERICAN ACADEMY OF DERMATOLOGY AND SYPHILOLOGY

The tenth annual meeting of the American Academy of Dermatology and Syphilology will be held in Chicago at the Palmer House, December 8 through 13.

Principal sessions will be held in the Palmer House from December 10 to 13, with special courses in histopathology and mycology scheduled for December 8 and 9 at the medical schools of the University of Illinois and Northwestern University. Special courses in x-ray and radium, bacteriology of the skin, anatomy and embryology of the skin, and special problems in dermatohistopathology will also be given.

AMERICAN COMMITTEE ON MATERNAL WELFARE

The fifth American Congress on Obstetrics and Gynecology will be held in Cincinnati, Ohio, March 31 through April 4, at the Netherland Plaza Hotel.

Sponsored by the American Committee on Maternal Welfare, the Congress will feature a comprehensive five-day scientific program covering the medical, nursing and public health aspects of the maternal care team.

More than 100 obstetricians and/or gynecologists are expected to take part in the medical program of papers, panels and discussions which extends throughout the week. In addition there will be twenty participants in two public health meetings and many more in the nursing section. There also will be technical and scientific exhibits, and several demonstrations of special interest.

General medical meetings will take up the main subjects of dystocia, sterility, urinary incontinence, uterine carcinoma, obstetric hemorrhage, ovarian tumors, toxemias, and fetal wastage. Panels of four physicians each will consider complications of puerperium, Rh and Hr sensitization, maternal mortality, lesions of the vulva, endometriosis, pregnancy complicating medical conditions, uterine bleeding, and cesarean section. Discussions will follow each presentation. Arrangements have been made for submittal of written questions, either by mail or at the Congress.

Congress registration fees are $5.00 for members and $10.00 for nonmembers. Further information, registration or reservations can be obtained by writing to Mr. Donald F. Richardson, Executive Secretary, American Committee on Maternal Welfare, 116 South Michigan, Chicago 3, Illinois.

AWARD FOR RESEARCH IN FIELD OF INFERTILITY

The American Society for the Study of Sterility announces the opening of the 1952 contest for the most outstanding contribution to the subject of infertility and sterility. The winner will receive a cash award of $1,000, and the essay will appear on the program of the 1952 meeting of the Society. Essays submitted in this competition must be received not later than March 1. For full particulars concerning requirements of this competition, address the American Society for the Study of Sterility, 20 Magnolia Terrace, Springfield, Massachusetts.

UROLOGY AWARD

The American Urological Association offers an annual award of $1,000 (first prize of $500, second prize $300 and third prize $200) for essays on the result of some clinical or laboratory research in urology. Competition shall be limited to urologists who have been in such specific practice for not more than five years and to men in training to become urologists.

The first prize essay will appear on the program of the forthcoming meeting of the American Urological Association, to be held at the Chalfonte-Haddon Hall, Atlantic City, New Jersey, June 23 to 26.

For full particulars write the secretary, Dr. Charles H. de T. Shivers, Boardwalk National Arcade Building, Atlantic City, New Jersey. Essays must be in his hands before February 15.

MINNESOTA PUBLIC HEALTH ASSOCIATION

The 45th annual meeting of the Minnesota Public Health Association held October 23, was attended by more than 450 people from all parts of the state.

At the business meeting held in the afternoon, Dr. W. F. Braasch, Rochester, president, and Dr. E. A. Meyerding, executive secretary, gave their reports.

"We should never lose sight of the fact that tuberculosis is a contagious disease and that our job is not done as long as there is a single case," said Dr. Braasch. "Short of some startling discovery of a new means of prevention or cure, the job in the future promises to be more difficult than it has been in the past."

New officers elected at the meeting were: President, Ray M. Amberg, and treasurer, Earl Sauer, both of St. Paul. Officers re-elected were: Dr. W. H. Valentine, Tracy, secretary, Montreville J. Brown, St. Paul, first vice president, Mrs. H. E. Johnson, Willow River, second vice president.

The members of the Minnesota Public Health Association approved an annual grant of $7,500 to the University of Minnesota for tuberculosis research. This fund will be known as the H. Longstreet Taylor grant, in honor of Dr. H. Longstreet Taylor, pioneer Minnesota tuberculosis worker. Dr. Taylor, who died in 1932, was known as the "Father of the tuberculosis sanatorium movement in Minnesota."

Speakers at the dinner were: Dr. Robert J. Anderson, Washington, and Dr. J. D. Adamson, Winnipeg. Dr. Anderson, who was born in Zumbrota, Minnesota, and received his medical degree from the University of Min-

(Continued on Page 1108)

(The Council on Pharmacy and Chemistry of the American Medical Association has adopted the following statement of Actions and Uses and of Dosage for publication in connection with a description of Banthīne Bromide for inclusion in New and Nonofficial Remedies)

METHANTHELINE BROMIDE.—*Banthīne® Bromide (Searle)*

β-diethylmethylaminoethyl 9-xanthenecarboxylate bromide

Actions and Uses.—Methantheline bromide, a parasympatholytic agent, produces both the peripheral action of anticholinergic drugs such as atropine and the ganglionic blocking action of drugs such as tetraethylammonium chloride. Tolerated amounts of methantheline bromide exert side effects typical of atropine-like drugs, but cause less tachycardia, and also less postural hypotension than does tetraethylammonium chloride. Toxic doses produce a curare-like action at the somatic neuromuscular junction.

Clinical studies indicate that the drug effectively inhibits motility of the gastrointestinal and genitourinary tracts and, to a variable degree, diminishes the volume of perspiration and salivary, gastric and pancreatic secretions. It also decreases mucoprotein secretion. Like atropine, it produces mydriasis and cycloplegia when applied locally to the eye or administered systemically, but until more clinical evidence becomes available, its local use for this purpose is not recommended. The value of the drug for preventing abnormal cardiac reflexes through the vagus during thoracic surgery, or as an agent for routine preoperative medication in place of atropine, requires further investigation before final conclusions can be reached.

Methantheline bromide is indicated for clinical use whenever anticholinergic spasmolytic action is desired, provided it is not contraindicated because of its atropine-like characteristics or because of a patient's intolerance to the unavoidable side effects of such therapy. It is useful as an adjunct in the management of peptic ulcer, chronic hypertrophic gastritis, certain less specific forms of gastritis, pylorospasm, hyperemesis gravidarum, biliary dyskinesia, acute and chronic pancreatitis, hypermotility of the small intestine not associated with organic change, ileostomies, spastic colon (mucous colitis, irritable bowel), diverticulitis, ureteral and urinary bladder spasm, hyperhidrosis or control of normal sweating which aggravates certain dermatoses, and control of salivation.

Methantheline bromide produces some degree of cycloplegia and mydriasis in therapeutic doses and therefore should not be administered to patients with glaucoma. It sometimes decreases the ability to read fine print. Xerostomia (dryness of the mouth) is a common, sometimes transient, side effect. Urinary retention of varying degree may occur in elderly male patients with prostatic hypertrophy, and some patients may have difficulty emptying the rectum. Patients with edematous duodenal ulceration may experience nausea and vomiting during initial administration of the drug. These patients should take only liquids during the institution of drug therapy. All patients should be advised of the possible occurrence of side effects. Overdosage sufficient to produce a curare-like action may be counteracted by prompt subcutaneous injection of 2 mg. of neostigmine methylsulfate.

Dosage.—Methantheline bromide is administered orally or parenterally by either the intramuscular or intravenous route. Parenteral administration is not advised for patients able to take the drug orally. The average initial adult dose, oral or parenteral, is 50 mg. For patients with considerable intolerance, 25 mg. may be employed. In the management of peptic ulcer, a beginning schedule of 50 mg. three times daily before meals and 100 to 150 mg. on retiring is suggested. However, the usual effective dose is 100 mg. four times daily, although some patients may require more or less than this amount. The dosage may be increased to tolerance, using dryness of the mouth as a guide, and adjusted to meet the individual response of patients. Maintenance dosage in peptic ulcer is usually considered to be about one-half the therapeutic level. In the management of other hypermotile or hypersecretory states, the dosage should be adjusted to the smallest amount which will relieve the symptoms. When spastic conditions are secondary to inflammatory or other organic lesions, therapy directed toward the cause should be employed whenever possible.

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Relationship of Stress to Autonomic Lability

Studies in psychosomatics have shown that functional disorders often are a result of the patient's inability to adjust to emotionally stressful situations (stressor factors).

Nervous tension and chronic anxiety, discharged through a labile Autonomic Nervous System, can cause somatic disturbance. [1,2.] Such states may involve any one of the organ systems or several at one time. [1,3.] The outline below is designed to relate gastrointestinal and cardiovascular symptomatology to the exaggerated response of the autonomic nervous system.

	Physiologic Effects of Autonomic Discharge	
	Sympathetic	Parasympathetic
Gastro-intestinal System	Hypomotility Intestinal Atony Hyposecretion Reduced salivation	Hypermotility Gastrointestinal spasm Hypersecretion
Cardio-vascular System	Rapid heart rate Peripheral vaso-constriction	Slow heart rate Vasodilatation
Functional Manifestations	Palpitation Tachycardia Elevated blood pressure Dry mouth and throat	Heartburn Nausea-vomiting Low blood pressure Colonic spasm

The data here tabulated is from references [3,4,5,6,7,] given below.

When the clinical picture is suggestive of functional disorder, the diagnosis is supported by the presence of the following indications of autonomic lability:

Variable Blood Pressure
Body Temperature Variations
Changing pulse rate
Deviations in B. M. R.
Exaggerated Cold Pressure Reflex
Oculo-Cardiac Reflex Abnormalities
Glucose Tolerance Alterations

Therapy in these cases is directed toward: 1) relieving the somatic disturbance to prepare the patient for psychotherapy*; 2) guidance in making adjustment to stressful situations and correction of unhealthy attitudes.

*Drug treatment using adrenergic and cholinergic blocking agents in conjunction with sedatives. [8,9,10.]

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MINNESOTA PUBLIC HEALTH ASSOCIATION

(Continued from Page 1106)

nesota, is chief of the Division of Chronic Disease and Tuberculosis, United States Public Health Service. Dr. Adamson is director of medicine, Deer Lodge Hospital.

"No other state has worked more vigorously than Minnesota to banish tuberculosis," Dr. Anderson said in his address. "Progress in controlling tuberculosis has been achieved here because you have been wise enough to adopt a co-ordinated, co-operative approach to the problem. It is your working partnership of professional and voluntary organizations, of public and private institutions, that has cut the mortality rate so drastically.

"Because of the progress already made, because of the low mortality and morbidity rates, because of your relative adequacy of hospital beds — tuberculosis control workers of Minnesota now have a rare opportunity. Significant contributions can be made here that will strengthen control measures not only in Minnesota, but wherever tuberculosis is fought.

"Although the stumbling block of residence requirements has been partially overcome for the purposes of tuberculosis control in Minnesota, it remains a major problem in other States. The freedom to move across state boundaries necessarily enjoyed by our people may contribute somewhat to a local problem of tuberculosis control, but especially in times like these, we must encourage and safeguard their mobility.

"It is obvious that physicians alone cannot eradicate tuberculosis. Not even all the voluntary and professional public health workers can remove some of the obstacles to complete eradication. We can find the cases, we can provide the beds, we can more and more frequently arrest the disease. But the final responsibility for complete eradication rests with the entire community. Every institution and every member of society must help us restore to health and usefulness the victims of the disease."

Special honor was paid to three doctors who have been outstanding leaders in the fight against TB in Minnesota. They were Dr. A. J. Chesley, executive officer of the State Board of Health, who has been with the department for fifty years; Dr. Francis F. Callahan, chief of the medical unit of the State Division of Social Welfare; Dr. E. L. Tuohy, Duluth, expert in internal medicine and pioneer in the state TB program.

Distinguished service plaques were presented to six men who have served for a quarter century or more as sanatorium commissioners. They were Dr. Charles M. Sherman, Luverne, Southwestern Minnesota sanatorium; Irving Todd, Hastings, Mineral Springs sanatorium; Elmer F. Blu, Duluth, St. Louis county sanatorium commissioner; B. A. Deterling, Granite Falls, Riverside sanatorium; Dr. O. F. Melby, Thief River Falls, Oakland Park sanatorium; and Dr. S. Marx White, Minneapolis, Hennepin county sanatorium commissioner.

In addition, thirty-nine pioneer Christmas Seal workers—volunteers who have been in Christmas Seal work for twenty-five years or longer, were honored. They represented all parts of Minnesota.

The sale of Christmas Seals for 1951 begins Monday, November 19, and continues through December 25.

(Continued on Page 1110)

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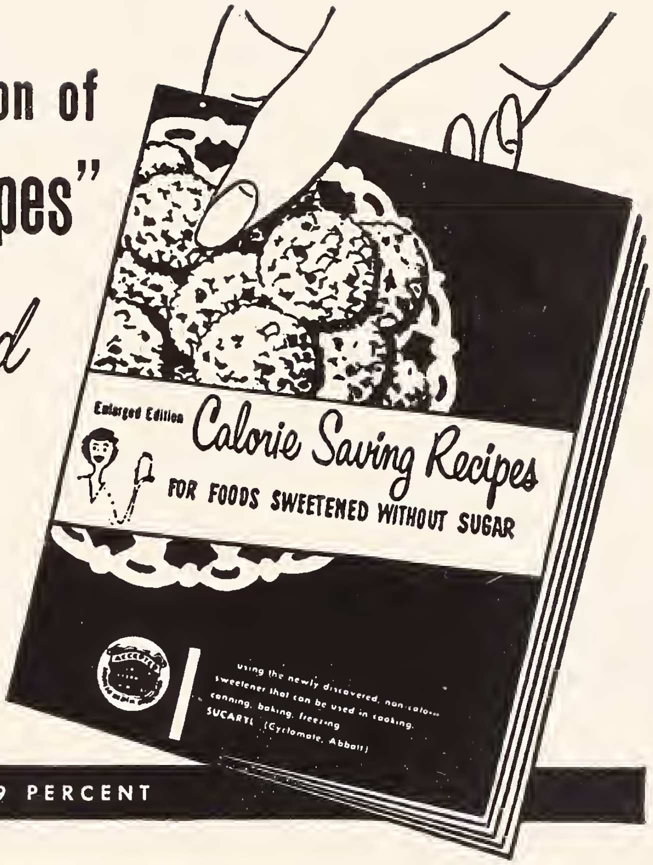
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(Continued from Page 1108)

MINNESOTA SOCIETY FOR THE PREVENTION OF BLINDNESS

The Minnesota Society for the Prevention of Blindness will hold its twelfth annual meeting Friday, November 30, at a dinner in Coffman Memorial Union, University of Minnesota, 6:15 P.M.

Dr. David M. Freeman, professor of ophthalmology, Washington University School of Medicine, St. Louis, Missouri, will be the speaker. He will talk on the importance to the public health movement, of the eye health survey in eye diseases of both children and adults. Dr. Freeman is participating in an outstanding eye health survey, in St. Louis and St. Louis County, sponsored by the National Society for the Prevention of Blindness and conducted from Washington University under the direction of Dr. Richard G. Scobee. Although the survey report is in process of being compiled, Dr. Freeman will review the findings in his talk before the Society.

Tickets for the dinner may be reserved at the Society's headquarters on the campus of the University, 15th and Washington Avenues S.E., Minneapolis.

CONTINUATION COURSE

Pediatrics.—The University of Minnesota will present a continuation course in pediatrics from January 7 to 9. The course will be held at the Center for Continuation Study and is intended for general physicians. Dr. Allan M. Butler, professor of pediatrics, Harvard Medical School, Boston, will be the guest speaker for the course and will deliver the annual Clarence M. Jackson Lecture, sponsored by the Phi Beta Pi medical fraternity, on Tuesday evening, January 8. For the Jackson Lecture, Dr. Butler will present the subject, "Parenteral Fluid Therapy in Diabetic Acidosis." Dr. Irvine McQuarrie, professor and head of the Department of Pediatrics, will be chairman for the course and will be joined by clinical and full-time members of the staff of the University of Minnesota and the Mayo Foundation.

Cook County Graduate School of Medicine

ANNOUNCES CONTINUOUS COURSES

SURGERY—Intensive Course in Surgical Technic, two weeks, starting November 26, January 21, February 4.

Surgical Technic, Surgical Anatomy and Clinical Surgery, four weeks, starting February 4, March 3.

Surgical Anatomy and Clinical Surgery, two weeks, starting February 18 and March 17.

Surgery of Colon and Rectum, one week, starting November 26, March 3.

Gallbladder Surgery, ten hours, starting April 21.

Basic Principles in General Surgery, two weeks, starting March 31.

GYNECOLOGY—Intensive Course, two weeks, starting February 18, March 17.

Vaginal Approach to Pelvic Surgery, one week, starting March 3.

OBSTETRICS—Intensive Course, two weeks, starting March 3, March 31.

MEDICINE—Intensive General Course, two weeks, starting April 21.

Electrocardiography and Heart Disease, two weeks, starting March 17.

UROLOGY—Intensive Course, two weeks, starting April 14.

Ten Day Practical Course in Cystoscopy every two weeks.

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Gynecology.—Dr. F. B. Carter, professor and head of the Department of Obstetrics and Gynecology, Duke University, Durham, North Carolina, will be visiting faculty member for a continuation course in gynecology to be presented by the University of Minnesota from January 3 to 5. The course is intended for general physicians and will be presented at the Center for Continuation Study. Dr. John S. Gillam, Department of Obstetrics and Gynecology, Fargo Clinic, Fargo, North Dakota, formerly a member of the staff of the University of Minnesota Medical School, will also participate as a visiting faculty member. The course is presented under the direction of Dr. John L. McKelvey, professor and head of the Department of Obstetrics and Gynecology of the University of Minnesota.

WABASHA COUNTY SOCIETY

The eighty-third annual meeting of the Wabasha County Medical Society was held at Lake City on October 4. Presiding at the afternoon and evening sessions was Dr. William P. Gjerde, Lake City, retiring president of the organization.

At a business session the following officers were elected for the next year: Dr. Doreen A. Martin, Wabasha, president; Dr. E. C. Bayley, Lake City, vice president; Dr. W. F. Wilson, Lake City, secretary-treasurer, and Dr. B. A. Flesche, Lake City, assistant secretary. Plainview was selected as the site of the next annual meeting.

The evening program included the following presentations: "Pancreatitis, a Case Report," which was the president's address by Dr. Gjerde. "Office Gynecology," by Dr. David G. Decker, Rochester. "Clinical Use of ACTH and Cortisone in Rheumatic Diseases," by Dr. L. Emmerson Ward, Rochester.

Deaths from all forms of tuberculosis in 1949 are estimated to have numbered 39,000. The estimated death rate of 26.2 per 100,000 population is 9 per cent lower than the rate for 1948, after allowance is made for the changes in classification procedure. A further decrease of approximately 15 per cent appears to have occurred in 1950. Changes in mortality from both respiratory tuberculosis, which accounts for 93 per cent of the deaths, and nonrespiratory forms of the disease contribute to the decreases.—Evelyn H. Halpin and Otis D. Turner, *Public Health Reports,* May 4, 1951.

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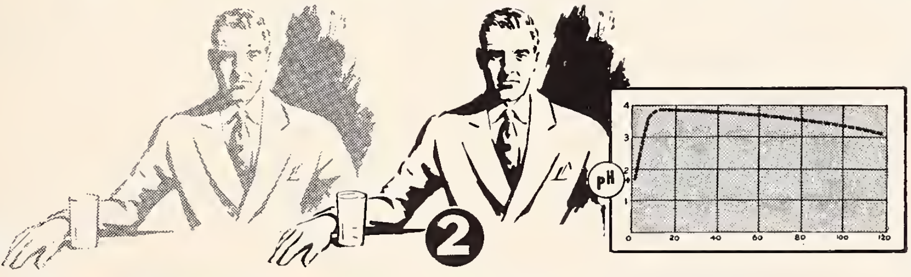

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References:

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Woman's Auxiliary

CHAIRMAN REPORTS ON NEW LEGISLATION

Mrs. H. F. R. Plass

As early as last June, presidential election maneuverings became apparent. After months of preparation, a group of Federal Security Agency officials and some labor leaders publicized a plan for use in the 1952 campaign. This plan calls for the Federal Government to pay hospital costs for persons sixty-five years of age or older who are covered by social security. They would be eligible for hospitalization even if earning sufficient money to make them ineligible for old age insurance payments. The estimated cost of the program was not made public, but the sponsors have indicated that a possible seven million persons would be covered. The plan must not have gained much popular approval, because, at this time, the Washington office of the American Medical Association does not feel Mr. Truman and his party are going to make this an issue in the coming election.

S. 1186 and H. R. 3298 (the Humphrey-Durham bills) revising the federal prescription code have been the center of much argument. In the original draft, the FSA Administrator was to decide what drugs should be labeled "prescription drugs" and what ones "over the counter." The Washington Office of the AMA feels this will be amended along the lines suggested by the AMA. In the final form it is felt that the drug industry and the medical profession will continue to decide which drugs are harmful or habit-forming.

H. R. 910 (the Bolton bill) was opposed by the AMA. This bill provides Federal aid to nursing education in four different categories: (a) Annual payments to schools for cost of instruction; (b) Grants for construction and equipment of new schools or expansion of existing schools; (c) Scholarships; (d) Grants for special projects and recruitment. A yearly sum of five million dollars was to be budgeted for the construction plans alone. Such funds as were necessary to carry out the other purposes of the act were to be appropriated. The Board of Trustees of the AMA proposed a federal program which would accomplish three things, namely: (a) a one-time grant-in-aid would provide for the construction of necessary additional nursing schools and the renovation of certain existing facilities; (b) a grant of federal funds made to the Committee on Careers in Nursing or some comparable private agency which would provide for a strong national promotions and information program to bring qualified young people into nursing, to improve the profession and encourage nurses to remain active in their profession; and (c) a temporary grant-in-aid, not to exceed five years, and administered by the states, would provide for an increase in the number of qualified teachers in the nursing field. Again, this is an opportunity for members to write representatives and express their opinion.

This will be an election year. Be alert, watch newspapers for current legislation, and keep Congressmen informed of opinions on this legislation.

AUXILIARY HISTORY (Concluded)

Mrs. E. M. Hammes, Sr.

Through a nurses' recruitment committee, several auxiliaries interest high school graduates in taking up the nursing profession. One auxiliary gives a fund to entertain and bring cheer to old people, a charity which brings a good deal of pleasure to a group of people often overlooked. Donations of athletic equipment, toys and books have been given to a boys' vocational school.

Sending underprivileged children to a summer camp has been a very worthwhile charity of one of the larger auxiliaries.

Besides giving to these charities, we have raised money to buy a handsome office desk and chair to be placed in the Dr. William A. O'Brien Memorial Room. When the new Mayo Memorial building is completed on the University of Minnesota campus, it will contain a room in memory of Dr. O'Brien, who was Professor of Preventive Medicine and Director of Postgraduate Medical Education at the University, and also one of the best friends the Woman's Auxiliary ever had. We unanimously wanted the privilege of having some part in this memorial. The desk will have a small plaque saying it is the gift of the Woman's Auxiliary to the Minnesota State Medical Association.

In the fall we hold the annual Workshop and school of instruction for the county auxiliary presidents and their committees.

The Workshop and Health Days are now an established part of our program, and have opened up a field of further usefulness to the Auxiliary.

The first Health Day took place at Worthington, in southwestern Minnesota.

The idea of Health Days originated with Mrs. Harold Wahlquist, and I have asked her to explain them in her own words:

"Health Days in Minnesota have become an important part of Auxiliary activity. We have been able to plan them because of wide community interest in improving local health conditions. People have shown a real desire to learn how they can work together better and to study other needs not yet apparent.

"Health Days have been planned under the leadership of the Woman's Auxiliary, the Minnesota State Medical Association and the Minnesota Department of Health.

"Previous to their inception in 1947, auxiliaries held public relation meetings inviting guests to attend. In initiating the idea of Health Days, we hoped to awaken communities to the great possibilities of health education by community cooperation, to rouse laity to learn to know health problems, and to realize many health matters are their local responsibility and can best be cared for through local effort. We also wanted them to learn to look to reliable sources for authentic information. To

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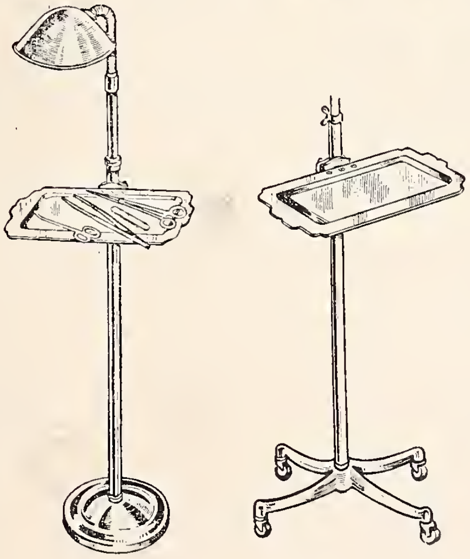

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AUXILIARY HISTORY

(Continued from Page 1112)

date, as many as fifty to sixty other organizations have acted as co-sponsors in various communities and have assisted with planning and work. Trade areas have determined the number of counties included in a Health Day plan.

"Health Day programs have varied in content and form. They have been planned to meet local needs. We have used movies, ten-minute talks, panel discussions, forty-five-minute talks, round tables. Participants have been specialists in their field and local citizens. Exhibits by the voluntary health organizations and contests for school children have increased interest.

"Direct results of Health Days are already evident. They are the formation of County Health Councils, the employment of county health nurses, the active participation of laity in Food Handlers Schools, the enactment of necessary health legislation. The intangible results will never be revealed completely. They are apparent in the increased community appreciation of the contribution to public health of the private practitioner. Said one county auxiliary president, 'Health Day was considered an outstanding day in this community because people felt that the medical people were working with them.'

"As in other health promotional efforts, the auxiliary is proud to be leading the way, and hopes Health Days will continue in all communities regardless of who initiates them. They were planned originally to awaken laity to their responsibilities to their communities and when outside organizations with our assistance take up the torch, our objective has been realized."

Our State Auxiliary has been represented from time to time in the national Auxiliary. Among members who have been thus honored are Mrs. James Blake of Hopkins, who was national president in 1933; Mrs. Harold Wahlquist of Minneapolis, of whom we are so justly proud, is now national president; Mrs. William Byrnes, Minneapolis, was national parliamentarian in 1933; Mrs. J. J. Ryan of Saint Paul served as national historian for four years; Mrs. S. S. Hesselgrave of Saint Paul, who is one of our outstanding members, and whose continuing work and loyalty are greatly appreciated, acted as recording secretary, 1931-32-33; Mrs. Charles W. Waas, Saint Paul, our immediate past state president, was a member of the Nominating Committee of the national Auxiliary in 1950.

We feel that we have accomplished much in the twenty-nine years of our existence. We hope that this is but a beginning, and that we shall go on to greater success, and make this state, of which we are so proud, equally proud of the Woman's Auxiliary to the Minnesota State Medical Association.

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AUXILIARY JOINS DOCTORS FOR COUNTY MEETING

Doctors' wives from many out-of-town communities joined Crookston members of the Auxiliary to the Red River Valley Medical Association for the September meeting at Crookston.

After a dinner meeting at the Hotel Crookston, auxiliary members met at the home of Dr. and Mrs. O. K. Behr for a business meeting, which was presided over by Mrs. A. R. Reff, vice president, in the absence of the president, Mrs. George Sather, Fosston.

During the business session, it was announced that the Woman's Auxiliary to the American Medical Association had contributed $10,000 to the American Medical Education fund, at the twenty-eighth annual convention in Atlantic City in June. The Auxiliary was asked to help support this fund.

Initial distribution of grants totaling more than a million dollars to seventy-nine medical schools in the country was made July 19 by the American Medical Education Foundation.

PREVENTION OF POSTANESTHETIC NAUSEA

(Continued from Page 1097)

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In Memoriam

KAHLIL AROUNI

Dr. Kahlil Arouni of Saint Paul died suddenly October 21, 1951, at the age of sixty.

He was born at Zahley, Mount Lebanon Republic, Syria, October 15, 1891. He obtained his medical education at the French University of Beyrouth, Mount Lebanon Republic, where he graduated in 1914. He served an internship at St. Joseph's Hospital in Saint Paul.

Surviving are his wife, Esther; two sons, Thomas J. and Dr. John J. Arouni, and a daughter, Mrs. Charles Grosche.

PAUL WILLIAM GIESSLER

Dr. Paul W. Giessler, a prominent orthopedist of Minneapolis, died September 24, 1951. He had been in poor health and had retired from active practice in 1936 because of coronary heart disease.

He was born in Minneapolis, June 6, 1885. He attended Central High School in Minneapolis and acquired his M.D. from the University of Minnesota Medical School in 1913. After serving an internship at Ancker Hospital, Saint Paul, he spent a year in orthopedic work at Gillette Hospital in Saint Paul. He then took postgraduate work at Massachusetts General Hospital in Boston.

During World War I, Dr. Giessler served as captain in the Medical Corps of the army and served overseas.

He became Assistant Clinical Professor at the University of Minnesota Medical School, was formerly head of Orthopedics at the Minneapolis General Hospital, was a founder of Michael Dowling School, and was the school's orthopedic surgeon for eighteen years; he was also connected with the Veterans Hospital and the Shriners Hospital for Crippled Children. More recently he was associated in his specialty with Dr. John F. Pohl.

He was a member of Hennepin County, Minnesota State and American Medical Associations, the American College of Surgeons, the American Academy of Orthopedics, the Minneapolis Academy of Medicine, the Minnesota Orthopedic Society, and the Central States Orthopedic Society.

He was a member of Alpha Delta Phi and Nu Sigma Nu fraternities, the Minneapolis Rotary Club, and Plymouth Congregational Church. For four years Dr. Giessler was chairman of the Health & Hospitals Committee of the Minneapolis Community Chest.

An accomplished musician, he was organist at Park Avenue Congregational Church for many years. He was known as an expert accompanist and his services were in constant demand.

Surviving are his wife, Catherine, and a son, Paul Thomas, who is in the armed services stationed at a military base in Texas.

LOUIS HENRY HEDENSTROM

Dr. Louis H. Hedenstrom, a Cambridge physician for many years, died at Bethesda Hospital, Saint Paul, September 29, 1951.

He was born in Falum, Sweden, September 3, 1884, and came with his parents to Lake Park, Minnesota, in 1886 and to Saint Paul two years later. He attended Mechanic Arts High School in Saint Paul and graduated from the University of Minnesota medical school in 1911. After interning at Bethesda Hospital, Saint Paul, he practiced at Martell, Wisconsin, from 1912 to 1915.

On October 4, 1915, Dr. Hedenstrom married Ebba Hultkrans of Saint Paul and the same month went to Cambridge where they have since lived. He is survived by his wife and two sons, Dr. Philip Hedenstrom of Marshall and Paul, a senior in the medical school of the University of Minnesota. His mother and four brothers also survive him.

Dr. Hedenstrom was a member of the East Central Minnesota Medical Society, the Minnesota State Medical Association and the American Medical Association.

ARTHUR E. KARLSTROM

Dr. Arthur E. Karlstrom, a pediatrician of Minneapolis, died October 4, 1951, at St. Barnabas Hospital after a long illness.

Born at Aitkin, Minnesota, January 7, 1902, he obtained his M.D. degree from the University of Minnesota medical school in 1935 and interned at the University Hospital. He took postgraduate work at Strong Memorial Hospital in Rochester, New York, and had a teaching fellowship in psychiatry. He also had a teaching fellowship in pediatrics at Minnesota General Hospital for a year. He held the appointment of Clinical Instructor in Pediatrics at the University of Minnesota medical school and was the Director of Child Study Clinics in the Minneapolis Public Schools. He specialized in child psychiatry as well as pediatrics.

A pediatrician on the staff of St. Barnabus and Asbury hospitals, he was a member of the American Academy of Pediatrics, the Northwest Society of Pediatrists, the Hennepin County Medical Society, the Minnesota State Medical Association and the American Medical Association. A deacon at the Central Free Church, he was also a member of the Christian Business Men's Committee of Minneapolis and the National Association of Evangelicals.

Dr. Karlstrom is survived by his wife, Eunice; two daughters, Marian and Carolyn; his parents, Mr. and Mrs. E. A. Karlstrom; and a sister, Mrs. Clarence Nyholm, all of Minneapolis.

◆ Of General Interest ◆

Ophthalmic Preparation Contaminated.—Schering Corporation of Bloomfield, New Jersey, has announced that a shipment of its ophthalmic preparation of cortisone acetate, marketed under the trade name of Cortogen Acetate Ophthalmic Suspension, is contaminated with *Pseudomonas aeruginosa* organisms. Only one batch of the material may be contaminated, but the firm is recalling all shipments of the drug. Physicians who have any of the drug on hand would be well advised not to administer it to their patients.

* * *

Dr. Merrill D. Chesler is now associated with **Dr. Samuel G. Balkin** at 410 Doctors Building, Minneapolis, in the practice of plastic and reconstructive surgery. A graduate of the University of Minnesota Medical School in 1943, Dr. Chesler worked in general surgery at Minneapolis Veterans Hospital for three years. Following this, he completed a two-year fellowship in plastic surgery at New Orleans, Louisiana.

* * *

The first issue of the **Journal of the Student American Medical Association** will appear in January, 1952. Published monthly except during the summer months, the magazine will have a circulation of more than 33,000 (26,191 medical students and about 7,000 interns).

* * *

Dr. G. R. Hassett, Waverly, was married to Miss Margaret Moriarty at Missouri Valley, Iowa, in September. Following the wedding, the couple left for a two-week trip through the East.

* * *

Dr. William B. Stromme, Minneapolis, gave a talk at a meeting of the Lyons-Lincoln County Medical Society on September 25. His topic was "Analgesia and Anesthesia in Obstetrics."

* * *

On the centennial of Major Walter Reed's birth, the Army Medical Center was changed in name to **Walter Reed Army Medical Center.** Ever since 1923, when Dr. Reed's name was dropped from the official title, the public, as well as military personnel, has continued to refer to the Army Medical Center as the Walter Reed. Re-education of the public is sometimes difficult and in this instance was impossible, so the Army Medical Service capitulated.

* * *

It was announced on October 1 that **Dr. George C. Jacobs** had closed his office in Fergus Falls and had retired from the active practice of medicine. Dr. Jacobs practiced at Fergus Falls for many years.

* * *

Dr. Lloyd S. Nelson, Minneapolis, was recently certified by the American Board of Pediatrics.

* * *

The National Institute of Health reports 3,705 grants awarded during fiscal 1951 at a total cost of $44,371,188. Medical research grants account for $17,306,529, or about 25 per cent of all medical research conducted in non-Federal institutions.

* * *

Announcement has been made of the marriage of Miss Rena Claire Brainerd and **Dr. John C. Brown,** Saint Paul, on August 18. Dr. Brown has retired from active practice and has moved to Los Gatos, California, Dr. and Mrs. Brown are now at home at 36 Peralta Street, Los Gatos.

* * *

Dr. C. G. Sheppard, Hutchinson, was elected president of the Minnesota Public Health Conference at a meeting in Minneapolis on September 29. He succeeds Dr. Viktor Wilson, Rochester. Among other officers elected was **Dr. W. O. B. Nelson,** Fergus Falls, first vice president. **Dr. S. A. Whitson,** Albert Lea, was named to the executive committee.

* * *

A new clinic building in McIntosh was dedicated on October 13. The building, 26 by 56 feet, contains eleven rooms, including x-ray and examination rooms and laboratory. The medical staff of the clinic includes **Dr. C. L. Roholt,** who recently concluded thirty years of practice at Waverly, and **Dr. William H. Henney.**

* * *

Dr. W. Randolph Lovelace, II, chairman of the Armed Forces Medical Policy Council, and **Dr. C. W. Mayo,** Rochester, made a tour of U. S. installations this fall to obtain suggestions for improving military medicine and surgery. Their scheduled tour called for them to visit Alaska and Japan, where they were to be accompanied by Surgeon General Sheele of the U. S. Public Health Service, and then to continue to Korea, Thailand, Arabia, Turkey, North Africa, France, Germany, Sweden and England, returning to Washington, D. C., on October 29.

* * *

"Behavior" was the subject of a talk given by **Dr. R. F. Mears,** Northfield, at a meeting of the Northfield Business and Professional Women's Club on October 1. Dr. Mears discussed the various factors which can affect a person's reaction to a given situation.

* * *

The curtailment in the size of the Mayo Memorial Medical Center, in the process of construction at the University Medical School, has made it necessary to eliminate the medical library and the two floors of the building which were intended for the Department of Pathology, including the **E. T. Bell Pathology Museum.**

It is planned, therefore, to carry out the original plan for the construction of a building on the vacant corner between the Anatomy Building and the Medi-

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cal Sciences Building, plans for which were made eight or nine years ago, to house the medical library and the E. T. Bell Pathology Museum. Construction will start as soon as sufficient funds have been provided by state legislative appropriation or private subscription, or both.

Funds already paid in or pledged or that will be subscribed in the future are being segregated for this purpose. Contributions, deductable for income tax purposes, may be made payable to the E. T. Bell Pathology Museum Fund and sent to the Minnesota Medical Foundation, University of Minnesota, Minneapolis 14.

Dr. and Mrs. C. H. Slocumb, Rochester, left on September 11 for a two-month trip to Europe. During their tour Dr. Slocumb spoke at medical meetings in several countries.

* * *

It was announced on September 20 that **Dr. Merton A. Johnson** planned to end his practice at Storden before the end of the year to take over the Houston Clinic at Nevada, Iowa. The exact date when he planned to leave Storden was not stated.

* * *

Early in September, **Dr. A. F. Sether,** Ruthton, presented the Ruthton Public School with baseball

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equipment valued at several hundred dollars, thereby earning the wholehearted gratitude of all of the community's school children.

* * *

Dr. Clyde A. Undine, Minneapolis, attended the Midwest regional meeting of the American College of Physicians at Columbus, Ohio, on October 13.

* * *

Principal speaker at a meeting of the Renville County Hospital Auxiliary at Bird Island on September 29 was **Dr. N. J. Bradley**, superintendent of the Willmar State Hospital. Dr. Bradley discussed mental illness, its cause and treatment.

* * *

Fifty-nine of seventy-three former fellows in neurosurgery at the Mayo Foundation returned to Rochester on September 28 to honor **Dr. A. W. Adson**, head of the section on neurosurgery at the Mayo Clinic for many years. The two-day reunion program included surgical clinics, scientific roundtable discussions, and entertainment. It concluded with a formal reunion banquet, at which Dr. Adson was presented with a book containing notes of personal tributes to him by the former fellows.

* * *

The Federal grant-in-aid funds to state departments of health in 1951, to assist various health programs, exclusive of the hospital construction program, amounted to $39,578,866. In the same year the U. S. Children's Bureau budget for maternal and child health and crippled children programs in the states amounted to $22,611,424. Approximately 40 per cent of Federal funds allocated to state departments of health are reallocated among local public health units. Should either of the pending bills (S. 445 or H.R. 274) become law, local public health units could receive from the Federal Government as much as one dollar per capita in addition to the sums mentioned above.—*AMA Special Bulletin,* October 17, 1951.

* * *

Dr. Russell H. Frost, superintendent of Glen Lake Sanatorium, was recently elected president of the Minnesota Rehabilitation Association, a new organization to promote the welfare of handicapped persons.

* * *

It was announced on September 21 that **Dr. Milton G. Brown** had returned to his position as clinical director of the Hastings State Hospital. He had been absent for several months while under treatment for a heart condition.

* * *

Dr. Edward Q. Ertel, Ellendale, attended a convention of the Rock Island Railroad Surgeons at Colorado Springs, Colorado, during the first week of October.

* * *

Nine Minnesota physicians became fellows in the International College of Surgeons at a meeting of its United States and Canadian chapters at Chicago from September 10 through 13. The nine Minnesota men are **Dr. R. W. Kearney**, Mankato; **Dr. E. M.**

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Jones, Saint Paul; **Dr. T. J. Kinsella, Dr. S. R. Maxeiner, Dr. Martin Nordland** and **Dr. J. H. Moe,** all of Minneapolis; **Dr. T. T. Myers, Dr. C. W. Mayo** and **Dr. William L. Benedict,** all of Rochester.

* * *

Dr. R. J. Kotval, Pipestone, was recently named to head the Pipestone County Public Health Advisory Commission.

* * *

Thirteen alumni of the University of Minnesota College of Medical Sciences were presented gold medals at the annual faculty dinner on October 8 at the Coffman Memorial Union.

* * *

Dr. J. L. Morrill, president of the University, presented the University's Outstanding Achievement medals to: **Dr. Frank E. Burch,** Saint Paul, emeritus professor of ophthalmology, University of Minnesota; **Dr. Albert J. Chesley,** Saint Paul, executive officer, Minnesota State Department of Health; **Dr. Fred L. Adair,** formerly of Minneapolis, now emeritus professor of obstetrics and gynecology, University of Chicago; **Dr. Earl R. Carlson,** internationally known neurologist of New York; **Dr. Arild E. Hansen,** chairman, department of pediatrics, University of Texas; **Alma C. Haupt,** director of nursing, Metropolitan Life Insurance Company. Also recipients were **Dr. Herman E. Hilleboe,** commissioner of health, State of New York; **Pearl McIver,** chief of the division of public health nursing, U. S. Public Health Service; **Dr. James E. Perkins,** New York, managing director of the National Tuberculosis Association; **Dr. Edith L. Potter,** professor of pathology, University of Chicago; **Dr. William P. Shepard,** president, American Public Health Association; **Dr. Albert M. Snell,** formerly head of a medical section at the Mayo Clinic and now with the Palo Alto Clinic in California; **Dr. Edward L. Tuohy,** chief of medicine in the Duluth Clinic.

The meeting was presided over by **Dr. George N. Aagaard,** director of continuation medical education. **Dean Harold S. Diehl** and **Dr. Elexious T. Bell** spoke at the meeting.

* * *

A twelve-county regional welfare conference was held at Anoka on October 18. Counties participating were Anoka, Benton, Chisago, Isanti, Kanabec, Meeker, Mille Lacs, Morrison, Sherburne, Stearns, Todd and Wright. Among the speakers at the meeting was **Dr. Walter P. Gardner,** Saint Paul, member of the governor's mental health advisory committee and former superintendent of Anoka State Hospital.

* * *

Dr. John L. Emmett, Rochester, was elected secretary-treasurer of the North Central Section of the American Urological Association at a meeting of the organization on October 6.

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Dr. R. F. Hedin, Red Wing, discussed the European medical situation at a meeting of the Red Wing Kiwanis Club on September 13. Dr. Hedin had recently returned from a trip to Europe. On September 24 at a meeting of the Red Wing Lions Club he also gave a talk on his European tour, describing primarily his impressions of several of the countries.

* * *

Wayzata acquired a new physician late in October when **Dr. Leonard L. Kallestad,** formerly of Brownton, opened offices in the newly remodeled and renamed Kallestad Building. The building was purchased by Dr. Kallestad and his dentist brother, Dr. H. O. Kallestad, who also has his offices located there.

Dr. Leonard Kallestad, a graduate of the University of Minnesota Medical School in 1938, served his internship at Minneapolis General Hospital and then entered practice at Hutchinson. He entered the Army in 1943 and acted as surgeon for the Manhattan District project at Oak Ridge, Tennessee. On his return to civilian life he became a partner in the Brownton Clinic, where he practiced until moving to Wayzata.

* * *

Dr. and Mrs. A. N. Bessesen, Jr., Minneapolis, used an early September vacation for a trip to the Northwest Angle, Minnesota's northernmost point of the United States.

* * *

Dr. Ralph Estrem, Fergus Falls, was appointed deputy county coroner of Otter Tail County early in October. County coroner is Dr. Carl Lund.

* * *

A check for $25,000 has been turned over to the University of Minnesota by the **Minnesota Heart Association** for research in heart disease in 1951-1952. This is the second time this amount has been granted the University by the Heart Association, which will conduct its annual Minnesota Heart Fund campaign next February. Dr. Harold S. Diehl, dean of medical sciences, received the check from Mr. Alan W. Giles, chairman of the 1952 Heart Fund.

* * *

Dr. D. John Lauer, a graduate of the University of Minnesota Medical School and former assistant professor of industrial medicine at the University of Cincinnati, has been appointed medical director of the Jones and Laughlin Steel Corporation. A native of Saint Paul, he earned one of the nation's first doctorate degrees in industrial medicine from the University of Pittsburgh. In his new position he will direct the employe health program and medical facilities in the corporation's plants and factories throughout the United States.

* * *

Dr. Bruce Boynton, Ada, was the principal speaker at a meeting of the Eleventh District of the Minnesota Nurses' Association at Ada on September 20.

* * *

"Convulsions in the Cerebral Palsy Children" was the title of a talk given by **Dr. Harold Flanagan,**

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Saint Paul, at an open meeting held by the Cerebral Palsy Council of Minnesota in Saint Paul on September 13.

* * *

After fifty-one years of medical practice, **Dr. William A. Coventry**, Duluth, retired from active practice on September 17, his seventy-fifth birthday.

A graduate of the University of Michigan College of Medicine, Dr. Coventry began practice in Duluth in 1901. He was a major factor in the organization of the Duluth Clinic in 1916. He took postgraduate work at the University of Vienna, at the Rotunda Hospital in Dublin and at the New York Lying-In Hospital. Nationally known for his work in obstetrics and gynecology, he has published numerous articles in medical journals.

Always interested in Duluth's civic affairs, he has worked with the Duluth Chamber of Commerce and other organizations for many years. In 1948 he was made a member of Duluth's Hall of Fame, and in 1949 he was named as one of Minnesota's 100 living great men by the state Junior Chamber of Commerce. He was president of the Minnesota State Medical Association in 1926 and was presented with its Distinguished Service Medal in 1946. He was active in the development of the Blue Shield plan and is one of twenty Minnesota physicians on the organization's board of directors.

Of Dr. Coventry's four children, his two sons are also physicians: **Dr. William D. Coventry**, Duluth, and **Dr. Markham B. Coventry**, Rochester.

Dr. Robert Rosenthal, Saint Paul pediatrician, gave a talk on "Physical Aspects of Mental Deficiency" at a meeting of the Saint Paul Association for Mentally Retarded Children on October 3.

* * *

Following the death of **Dr. A. E. Karlstrom** during the middle of October, his associate, **Dr. Harold W. Hermann**, announced that he will continue in the practice of pediatrics in their offices at 1610 West Lake Street, Minneapolis.

* * *

Dr. Leo R. Prins recently opened an office at 222 Medical Arts Building, Albert Lea, for the practice of urology. Previously he had been associated with the Surgical and Medical Clinic of Albert Lea since 1937.

Dr. Prins presented a paper on a new automatic valve for use with the resectoscope at the North Central Section of the American Urological Association meeting held at Toledo, Ohio, on October 5.

* * *

The following Minnesota physicians attended postgraduate courses at the Cook County Graduate School of Medicine in October: **Dr. Ove A. Erdal**, Albert Lea; **Dr. John Bellomo**, **Dr. Bernard D. Stack**, **Dr. Fred L. Webber**, and **Dr. E. R. Youngren**, all of Saint Paul.

* * *

Dr. Robert W. Goltz has opened an office at 652 Medical Arts Building, Minneapolis, for the practice

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Dr. L. R. Gowan, M.D., M.S., Medical Director

of dermatology. He is a diplomate of the American Board of Dermatology and Syphilology. He is the son of **Dr. E. V. Goltz,** Saint Paul, and interned at Ancker Hospital, Saint Paul. He took postgraduate work in dermatology at the University of Minnesota.

* * *

At the annual meeting of the Minnesota Society of Internal Medicine at Saint Paul on October 27, **Dr. Samuel Boyer,** Duluth, was elected president; **Dr. John Briggs,** Saint Paul, vice president; **Dr. Robert L. Parker,** Rochester, re-elected secretary-treasurer.

* * *

Dr. W. B. Halme, Wadena, has announced that he is now conducting a practice in Menahga twice each week. According to his announcement, he is available to Menahga patients on Wednesday mornings and Saturday afternoons.

* * *

Dr. Peter J. Schultz, Richfield (Minneapolis suburb), is now taking a special course in surgery at the University of Pennsylvania, where he will stay until June. His practice is being conducted during his absence by **Dr. Roger Larson.**

* * *

Dr. D. S. Branham, staff member of the St. Peter State Hospital, was the principal speaker at a meeting of the Blue Earth County Public Health Association auxiliary units at Mankato on October 2. The subject discussed at the meeting was "Geriatrics: Problems and Care of the Aged."

* * *

Observance of **Public Health Week** began in Crow Wing County on October 8, with the first day's events devoted to cancer education. Scheduled for the second day of the week was a program on dental health and civil defense. Speakers at the numerous events were local and state physicians and nurses. The week's program was sponsored by local civic veteran and service groups in co-operation with the Minnesota Department of Health, Minnesota Heart Association, American Cancer Society and Mental Hygiene Society.

* * *

Dr. David A. Sher, Virginia, who is associated with the Lenont-Peterson Clinic, presented a paper on encephalitis at a meeting of the Northwest Pediatric Society in the Twin Cities during the last weekend in September. Sessions of the society were held at Bayport and at the University of Minnesota Hospitals.

* * *

Dr. George N. Aagaard, director of postgraduate medical education at the University of Minnesota, has been named dean of the Southwest Medical School at the University of Texas in Dallas. He will begin his new duties on January 1. Dr. Aagaard was named to his present post in March, 1948, succeeding the late Dr. William A. O'Brien.

* * *

Among the speakers at a meeting of the Minnesota Welfare Conference, Region 8, at Owatonna on October 11 was **Dr. Reynold A. Jensen,** chief of the child psychiatry department at the University of Minnesota Hospitals. The meeting was concerned with problems of the mentally retarded. Dr. Jensen's talk was entitled "Developing a Program of Preventive Mental Health Service."

* * *

Dr. John R. Petersen, Minneapolis, retiring medical director of the Lutheran Brotherhood, fraternal insurance organization, was honored at a luncheon given by officers of the organization on September 21. Dr. Petersen has been chief medical examiner for the organization since it first applied for a charter in 1918. In 1940 he was elected to the board of directors and named medical director.

A graduate of the University of Minnesota Medical School in 1897, Dr. Petersen practiced medicine at Renville, Willmar and Madison before moving to Minneapolis.

* * *

An immunization clinic for children was conducted by **Dr. H. A. Palmer** at Blackduck on September 25.

* * *

Dr. and Mrs. Waltman Walters, Rochester, recently returned from a trip to Europe. During the trip Dr. Walters spoke at meetings of two surgical organizations. The tour lasted about a month and one-half.

* * *

As principal speaker at a meeting of the Saint Paul

Business and Professional Women's Association on September 20, **Dr. D. R. Gillespie**, chairman of the Saint Paul Area Public Health Council, discussed community health problems in relation to the organization of city and county health departments.

* * *

Dr. L. H. Bendiz, Annandale, has been named Wright County coroner to complete the unexpired term of **Dr. C. L. Roholt**, who resigned upon moving from the county.

* * *

Dr. F. H. Magney, Duluth, spoke on "Civil Defense" at a meeting of the St. Louis County Medical Society at Duluth on September 13.

* * *

Immunization clinics were conducted in various cities of Blue Earth County during October. At Mapleton the clinic was under the direction of **Dr. E. G. Howard** and **Dr. J. C. Vezina**. Dr. Vezina also conducted a clinic at Pemberton. At St. Clair the clinic was directed by **Dr. R. O. Juliar**, while **Dr. B. N. Batdorf** was in charge of one at Good Thunder.

* * *

"Home Accident Prevention, Especially as It Pertains to Children" was the title of a talk given by **Dr. Tague C. Chisholm**, Minneapolis, at a meeting of the Cottonwood County Nursing Service at Mountain Lake on September 18.

* * *

Dr. John Austin Culligan, son of **Dr. John M. Culligan** of Saint Paul, recently completed his internship at the Graduate Hospital, University of Pennsylvania. He spent two months as ship's surgeon on the *S. S. Independence*, cruising in the Mediterranean. On October 1 he entered the Mayo Foundation as a fellow in surgery.

* * *

Dr. Edward B. Tuohy, son of **Dr. E. L. Tuohy** of Duluth and recently with the Section on Anesthesiology at the Mayo Clinic, not long ago visited Air Force hospitals in Great Britain, France and Germany. Dr. Tuohy is a member of the National Board of Consultants to the Surgeon General of the Air Force, Major General Harry G. Armstrong. While in London, Dr. Tuohy read a paper before the International Anesthesia Research Society on "Adaptations of Continuous Spinal Anesthesia in Medicine and Surgery."

* * *

It was announced on October 19 that **Dr. C. G. Uhley**, Crookston, had been elected president of the Minnesota division of the American Cancer Society, to succeed **Dr. Arthur H. Wells**, Duluth. Elected as a vice president of the organization was **Dr. David P. Anderson**, Austin.

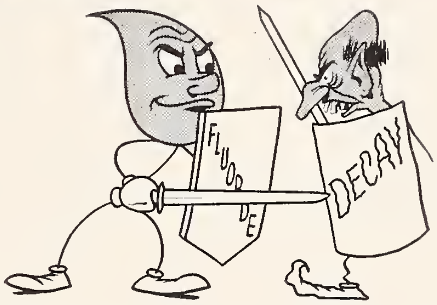
* * *

Dr. Phillips Roth, formerly of Harrisburg, Pennsylvania, has joined the staff of the Oliver Clinic at Graceville. A graduate of Yale University, Dr. Roth is associated in practice with **Dr. I. L. Oliver**.

* * *

Dr. C. C. Craig, International Falls, was given a belated birthday party by fifty close friends on Oc-

Important News!



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tober 16. Although Dr. Craig's seventy-fifth birthday occurred on October 4, he was on vacation at the time so the party at which his friends wished to honor him had to be delayed. Dr. Craig has practiced medicine at International Falls for thirty-five years.

HOSPITAL NEWS

The board of directors of the **Northwestern Hospital Association** announced on September 17 that Dr. Oscar F. Mellby, Thief River Falls, had been appointed honorary chairman for a building fund campaign designed to provide an addition to the existing hospital at Thief River Falls.

At a meeting of the county boards of Todd and Wadena Counties at Long Prairie on September 5, it was voted to close **Fair Oaks Sanatorium** at Wadena on November 1. Inability to obtain a superintendent was given as the reason for the closing. The institution has been operated jointly by the two counties since 1916.

* * *

Recently elected as staff officers of the new **Buffalo Memorial Hospital** are the following: Dr. S. J. Raetz, Maple Lake, chief-of-staff; Dr. T. J. Catlin, Buffalo, vice president; Dr. W. P. Anderson, Buffalo, secretary-treasurer; Dr. W. E. Hall, Maple Lake, trustee on the executive board.

* * *

The **Clearwater County Memorial Hospital,** Bagley, was recently judged the best hospital built since World War II in a contest conducted by the American Institute of Architects. In the first postwar hospital contest held by the AIA, the $253,000 thirty-bed Clearwater hospital won out against more than twenty other institutions, including several large metropolitan and veterans hospitals.

Entries were rated by a panel including three nationally known architects and two prominent hospital administrators. Judges were impressed most by the efficient layout of the one-story Clearwater structure.

* * *

Results of staff elections recently held at **Northwestern Hospital,** Minneapolis, are as follows: Dr. Kenneth Bulkley, president; Dr. Willard Peterson, vice president, and Dr. N. E. Rud, secretary-treasurer.

BLUE CROSS-BLUE SHIELD

Blue Shield medical care plans have enrolled twenty-one million people in the United States and Canada, according to an announcement by the Blue Shield Commission, Chicago, national association of the non-profit Blue Shield plans, sponsored by the medical profession. The twenty-one millionth subscriber is Rosemarie Hart of Saint Paul, a Northwest Airlines stewardess, who became a member of the Northwest Airlines group in the Minnesota Blue Shield Plan.

Frank E. Smith, director of the Blue Shield Commission, presented Miss Hart with a certificate in commemoration of the event, at a ceremony in Saint Paul which was attended by officials of the state's hospital and medical associations and by civic leaders who have supported the non-profit Blue Shield medical care prepayment movement in Minnesota and elsewhere.

"This is a remarkable tribute to the medical profession," said Smith. "The 115,000 doctors who sponsor the seventy-seven non-profit Blue Shield Plans have given dramatic proof that the voluntary prepayment principle can be made to work. Enrollment of twenty-one million people within the space of only a few years is ample testimony to the fact that the public wants this type of protection. Even more encouraging is the accelerated speed at which enrollment is growing. Blue Shield Plans added more than six million members during the past twelve months."

Minnesota Blue Shield announced that its own enrollment has reached the 500,000 mark. "This is a splendid record of achievement," commented Smith, "especially in view of the fact that the Minnesota Plan started from scratch less than five years ago."

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BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical Libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

STATISTICS FOR MEDICAL STUDENTS and Investigators in the Clinical and Biological Sciences. Frederick J. Moore, M.D., Associate Professor of Experimental Medicine, University of Southern California School of Medicine; Frank B. Cramer, B.S., Research Fellow, and Robert G. Knowles, M.S., Research Associate, Department of Experimental Medicine, University of Southern California School of Medicine. 113 pages. Illus. Price $3.25, cloth. Philadelphia: Blakiston Co., 1951.

THE HEALING TOUCH. Harley Williams. 370 pages. Illus. Price $6.75, cloth. Springfield, Illinois: Charles C Thomas, 1951.

INDEX OF MODERN REMEDIES. Scott Murray, Editor. 116 pages. Price $2.00, paper cover. Toronto, Canada: The Scottish Chemist, 1951.

INTERNAL MEDICINE—Its Theory and Practice. John H. Musser, B.S., M.D., F.A.C.P. Late Professor of Medicine, Tulane University of Louisiana School of Medicine, New Orleans. Fifth Edition edited by Michael G. Wohl, M.D., F.A.C.P. Associate Professor of Medicine, Temple University School of Medicine, Chief of Nutrition Clinic, Philadelphia General Hospital, Chief of Endocrine Clinic, Temple University Hospital. With eighty contributors. 1563 pages. Illus. Price $15.00, cloth. Philadelphia: Lea & Febiger, 1951.

A BIBLIOGRAPHY OF INFANTILE PARALYSIS. With Selected Abstracts and Annotations. Second Edition. National Foundation for Infantile Paralysis, Inc. Edited by Morris Fishbein, M.D., Editor, Excerpta Medica, and Ella M. Salmonsen, Chief, Medical Department, John Crerar Library, Chicago; with Ludvig Hektoen, M.D., Editor Emeritus, Archives of Pathology. 899 pages. Price $16.00, cloth. Philadelphia: J. B. Lippincott Co., 1951.

DIABETES CONTROL. Edward L. Bortz, M.D. Chief of Medical Service B, The Lankenau Hospital; Associate Professor of Medicine, Graduate School of Medicine, University of Pennsylvania, Philadelphia. Former President of American Medical Association. 264 pages. Illus. Price $3.50, cloth. Philadelphia: Lea & Febiger, 1951.

THE CHANGING YEARS. What to do about the menopause. Madeline Gray. 224 pages. Price $2.75, cloth. Garden City, New York: Doubleday & Company, Inc., 1951.

TECHNICAL METHODS FOR THE TECHNICIAN. Anson Lee Brown, B.A., M.D., President of Anson L. Brown, Inc. 4th ed. 784 pages. Illus. Price $10.00. Columbus, Ohio: Anson L. Brown, Inc., 1951.

This large volume is intended to assist students who wish to become laboratory technicians. In an attempt to be convenient and time-saving, the style is necessarily simple. As such, only an outline of the technical methods

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is presented with no preparation or explanation for the end result.

The contents are arranged in an orderly fashion, and the book contains up-to-date material. The tests are fairly inclusive. However, only slight attention is given to the phases of bacteriology and parasitology. The questions at the end of the chapters might be of some value to the student technicians. The personal preferences of the author are stressed and at times become superfluous.

With the exception of the color plates of the blood cells, most of the illustrations and figures, and more particularly the photographs, are not clear.

A reference list is included at the end of the book. However, a bibliography is not employed, nor has proper attention been given the accepted names of some of the procedures.

The scope of the book is limited, serving only as an elementary textbook pursuant to a very general clinical technician. It would be of little value as a reference book, since most of the procedures are not detailed and lack the theoretical basis for the methods.

Betty R. Ward

CLINICAL APPLICATIONS OF SUGGESTION AND HYPNOSIS. William T. Heron, M.A., Ph.D., Professor of Psychology, University of Minnesota. 116 pages. Price $3.00. Springfield, Ill.: Charles C Thomas, 1950.

This book should be read by all physicians who are interested in the use of hypnosis in the treatment of functional diseases. To date there have been very few books written for the general practitioner. This is the only book I have seen and read that gives in brief the methods of induction in a simple form, and in addition gives precautions in the use of hypnosis that have in the past been so little stressed. Sufficient stress has not been placed, however, on the theory of how hypnosis works, particularly since physicians are skeptical of anything new in this type of modern day treatment.

Any physician who is interested in trying hypnosis on his patients would gain a great deal by reading this book, since it gives him a good outline and fair understanding of the procedures. It would be better, however, to have a fuller understanding of what type of functional diseases hypnosis benefits. If the physician does not know the types of diseases that hypnosis is able to help, he would become greatly discouraged in finding out after his use of such a treatment that his patient gains no benefit.

Clarence Siegel, M.D.

SAW-GE-MAH (MEDICINE MAN). By Louis J. Gariepy, M.D. 326 pages. Price $3.00. Saint Paul: Northland Press, 1950.

Saw-Ge-Mah (Medicine Man), written by Louis J. Gariepy, M.D., is a delightful story which should hold the interest of every medical student, physician and nurse. Lay persons, too, who enjoy human interest stories rooted in the humble folk will find much to satisfy them in this book. Individuals who have received their support and college education from parents in good financial circumstances may find difficulty in appreciating this story, for Saw-Ge-Mah is the story of Hal Adams, son of a poor mill worker, who decides to become a doctor. His premedical and medical education is obtained after years of struggle, long hours and hard work. During a two-year internship, the young physician is further handicapped by being subjected to humilities inflicted by the senior house physician, a boyhood rival and son of the wealthy mill owner. The tragic death of Mary, the girl whom he had hoped to have for his wife, added further to the trials during this period of his life.

Hal Adams, the young general practitioner, starts his practice in his own home town, Blufftown, Michigan. The long hours and arduous tasks of the country doctor

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are endured and enjoyed by the young medic who has set his goal at becoming a great surgeon. With the help of a most understanding and sympathetic wife, Kate, Hal exemplifies the finest in medical practice amongst the poor and deserving people of his community. Later, as a specialist in surgery in Detroit, he becomes a leader in his profession and climbs to positions of importance in the medical life of the city.

Dr. Hal Adams fulfills his mission in medicine by practicing the very finest type of medicine, by becoming the champion of the cause of the general practitioner and by leaving no stone unturned in helping young physicians to obtain hospital staff appointments and to further their graduate education. Loyal and devoted to his loved ones during the many years of struggle, hardships and heavy medical practice, Hal Adams remained a humble man in spite of his greatness.

THE PROSTATE GLAND. By Herbert R. Kenyon, M.D., Associate Attending Urologist, Univ. Hospital, New York University—Bellevue Medical Center and Morrisania City Hospital, N. Y. C.; Attending Urologist, Lenox Hill Hospital; Associate Clinical Professor of Urology, N. Y. University. 194 pages. Price $2.95. New York: Random House, 1950.

Doctor Kenyon has done a very admirable job in presenting a difficult subject of considerable interest to the public. His topics are well organized, and the continuity of thought and description runs well throughout the book.

The book is somewhat technical in many respects for the average lay person but his descriptive matter gets his point across.

The scope of the book is large and covers all phases of prostatic pathology. It is a book which could be highly recommended to doctors who do not specialize in urology as well as medical students and laity who might be interested.

Irving Victor, M.D.

THE MANAGEMENT OF THE PATIENT WITH SEVERE BRONCHIAL ASTHMA. Maurice S. Segal, M.D., Assistant Professor in Medicine, Tufts College Medical School; Director, Department of Inhalational Therapy, Boston City Hospital, Boston, Mass. 158 pages. Price $3.50. Springfield, Ill.: Charles C Thomas, 1950.

This book, in itself, is an excellent outline giving a clinical concept of bronchial asthma and its treatment in detail. It discusses for the general practitioner particularly the pathophysiology, the acute paroxysm, complications, fatalities, and classification of the disease. It gives the physician a rather detailed discussion of the physiology of bronchial asthma and a better understanding of how the disease acts. The treatment of bronchial asthma is discussed in detail; however, I do not feel that anything new has been added to the knowledge of the treatment of this disease. It is however, a good review for the general practitioner and internist.

At the time that this book went to press the use of ACTH and Cortisone in the treatment of bronchial asthma had just been made available to the physician. There is only a brief note regarding the dosage of this drug in the treatment in this disease.

This is an excellent review for the physician and will help to create a better understanding between the patient and physician in the management of severe bronchial asthma.

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SURGERY OF THE STOMACH AND DUODENUM: A HANDBOOK OF OPERATIVE SURGERY. By Claude E. Welch, M.D., Associate Visiting Surgeon, Massachusetts General Hospital; Clinical Associate in Surgery, Harvard Medical School. Illustrated by Muriel McLatchie Miller. 349 pages. Price $8.50. Chicago: The Year Book Publishers, 1951.

The first of a series of handbooks giving step-by-step techniques of the more common operations in general surgery, this volume deals exclusively with the stomach and duodenum. All the various types of resections and enterostomies for benign and malignant lesions are presented. The handling of such difficult problems as actively bleeding ulcer, stomach ulcer and gastro-colic fistula is outlined in detail.

The illustrations are outstanding, with the printed text presented on the facing page, making the drawings easy to follow.

The techniques are generally those in use at the Massachusetts General Hospital. The book can be highly recommended.

Edward W. Sickels, M.D.

THE NEW YORK ACADEMY OF MEDICINE; ITS FIRST HUNDRED YEARS. By Philip Van Ingen. 573 pages. Illus. Price $10.00. New York: Columbia University Press, 1949.

This fascinating and extremely well-written narrative provides a biographical sketch of organized medicine in our largest city. By the end of the book, the reader has gained a sense of intimacy with the organization, the activities of whose members are recorded. The New York Academy has no life except that of its members, but in these pages the organization seems to breathe and outlive its human components.

The Academy was founded to separate the regular practitioners who based their work on science from rogues who practiced quackery. Additional objects of the organization were the promotion of the character, interests and honor of the profession and the cultivation and advancement of the science of medicine.

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Donald deF. Bauer, M.D.

CHEST X-RAY DIAGNOSIS. By Max Ritvo, M.D., Assistant Professor of Radiology, Harvard Medical School; Instructor in Radiology, Tufts Medical School. Roentgenologist-in-chief and Director, Department of Radiology, Boston City Hospital; Associate Radiologist, Beth Israel Hospital, Boston, Mass.; Radiologist, Jewish Memorial Hospital, Jewish Tuberculosis Sanatorium of New England, Revere Memorial Hospital, and Hudson Hospital. 558 pages. Illus. Price $15.00. Philadelphia: Lea & Febiger, 1951.

More than 600 illustrations appear in this work. X-ray negatives are employed liberally and appear as negatives, which is a decidedly favorable situation.

Chest x-ray films are becoming increasingly commonplace in medical practice. Ritvo warns against permitting lowering of standards of interpretation. A false security derives from a negative report. Great harm can result to an individual and his family from a false report of tuberculosis or cancer. The importance of making a consultation of the referral of a patient for an x-ray is stressed. The radiologist needs all available clinical data, not to please the radiologist, but to provide the patient and referring physician with the very best possible interpretation of the findings on the exposed film.

Ritvo includes chapters on lungs, mediastinum, pleura, diaphragms, heart, aorta, pulmonary artery, pericardium and the soft tissues of the neck and chest wall.

Donald deF. Bauer, M.D.

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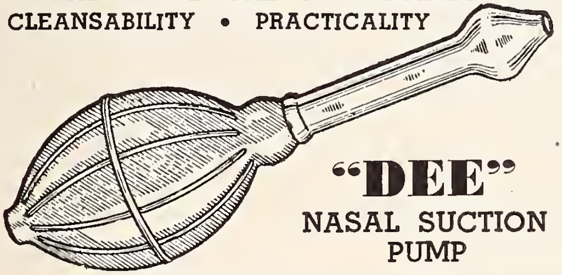

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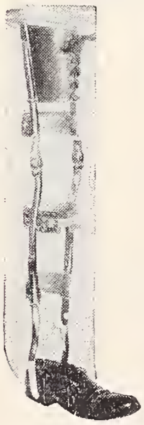

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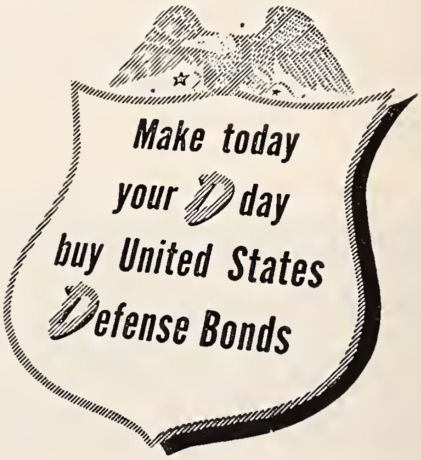

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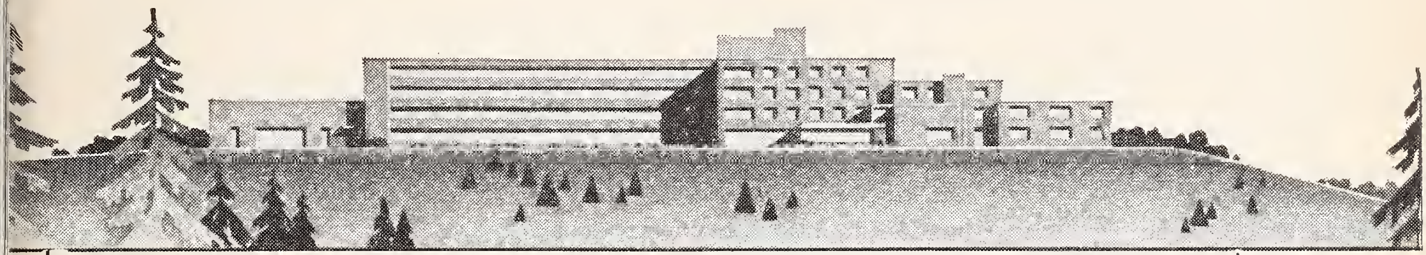

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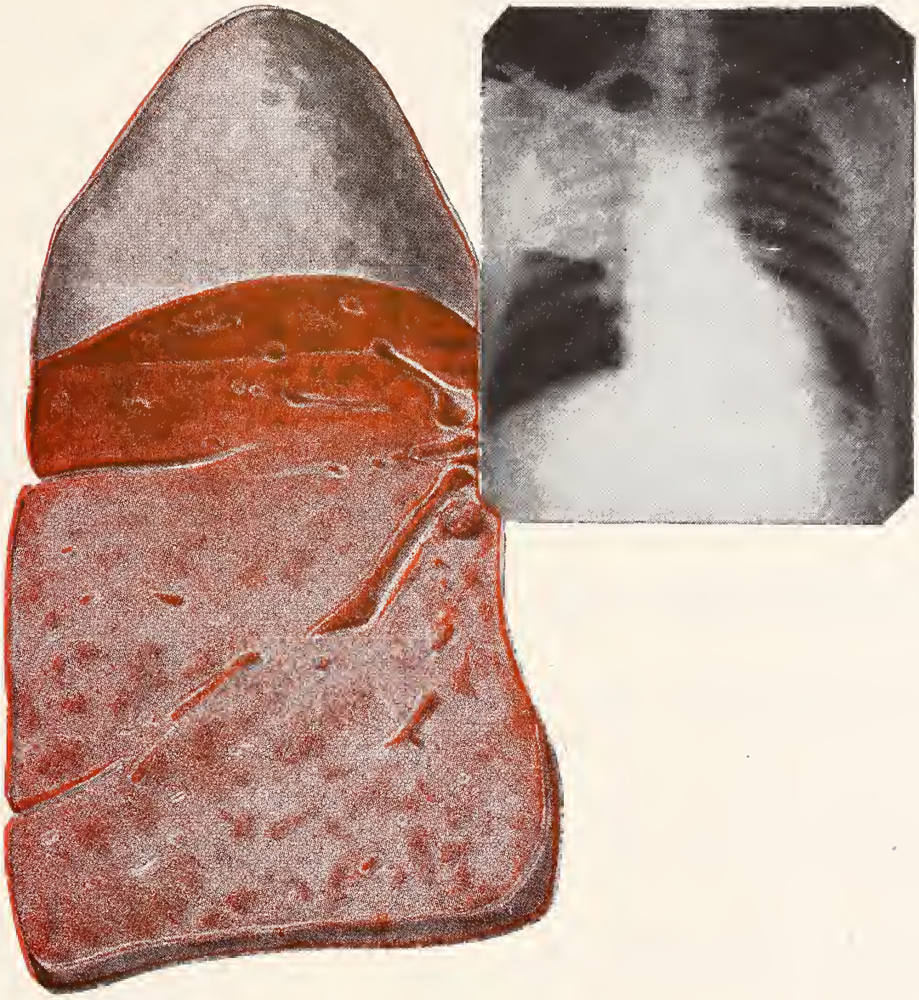

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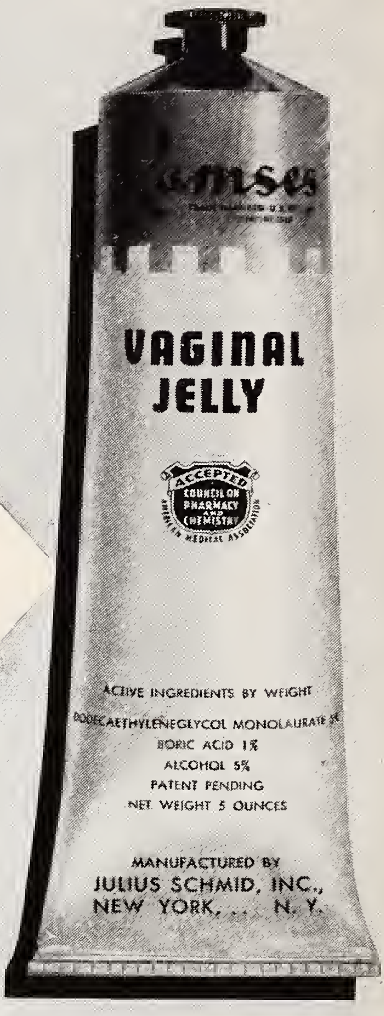
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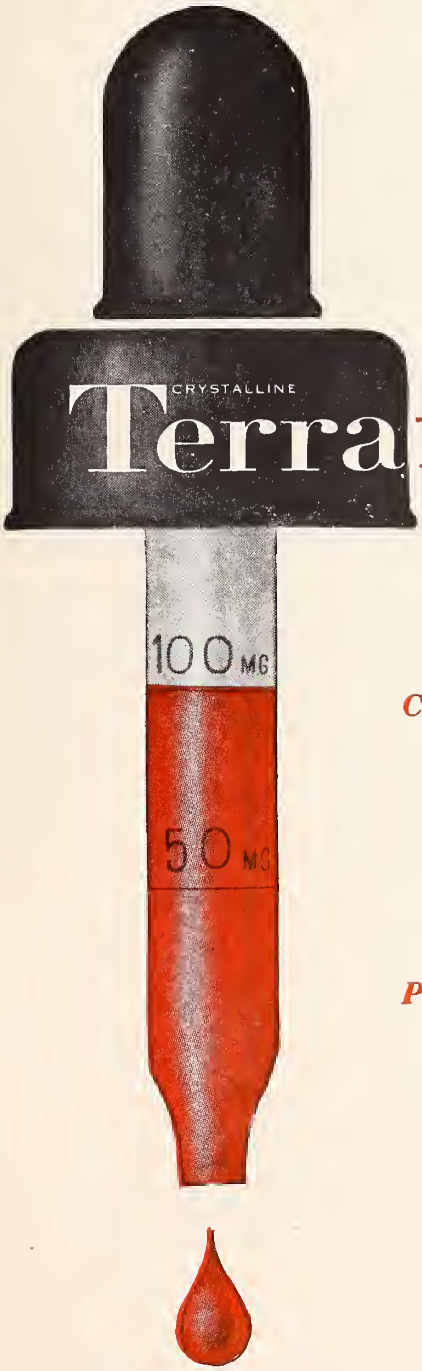

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**Gosselin, George A., M.D.*
Neurology and Physiology in
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Connecticut State Medical Journal
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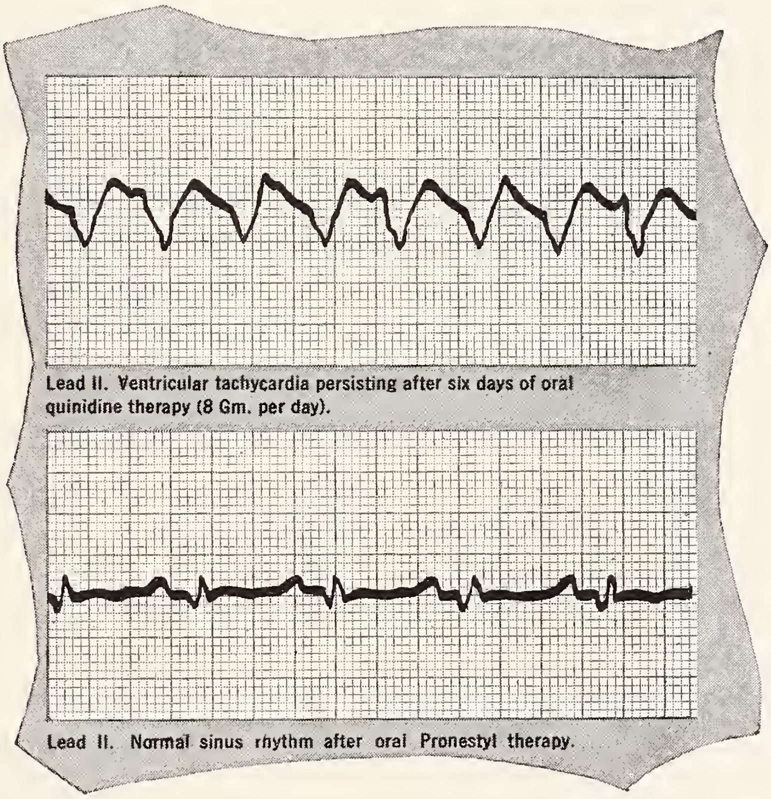

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NORM

Normal schedule of development (auxodrome) plotted on Wetzel Grid.[1]

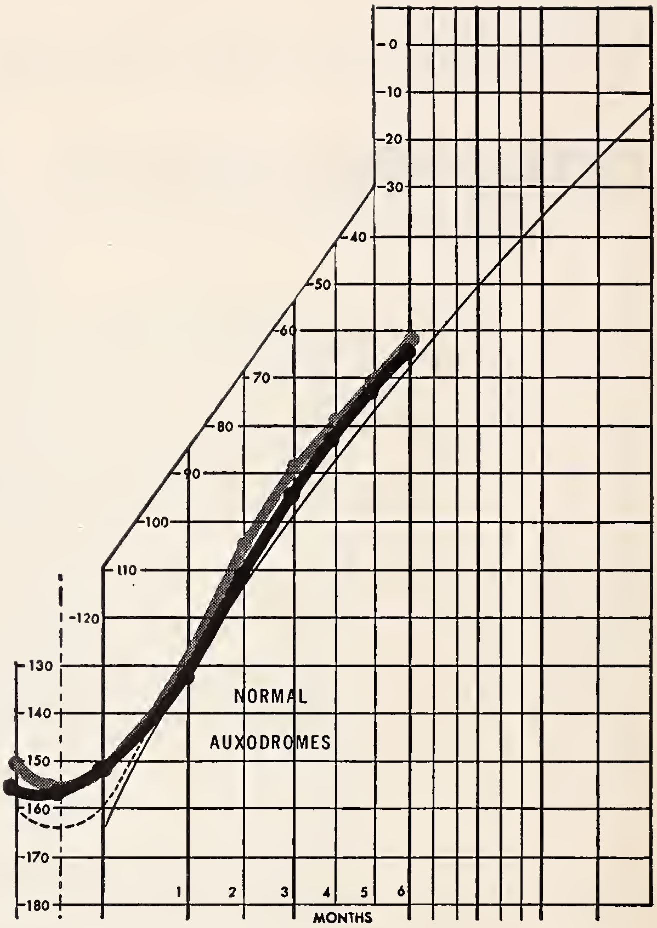
CURVE A

Composite Wetzel Grid auxodrome of 60 unselected infants on S-M-A from birth to 6 months of age.

CURVE B

Growth data, recomputed on Wetzel Grid, based on "selected subjects, most of whom were favored by environment;"[2] age: from birth to 6 months.

1. Wetzel, N. C.: J. Pediat. *29*:439, 1946.
2. Jackson, R. L., and Kelly, H. G.: J. Pediat. *27*:215, 1945.



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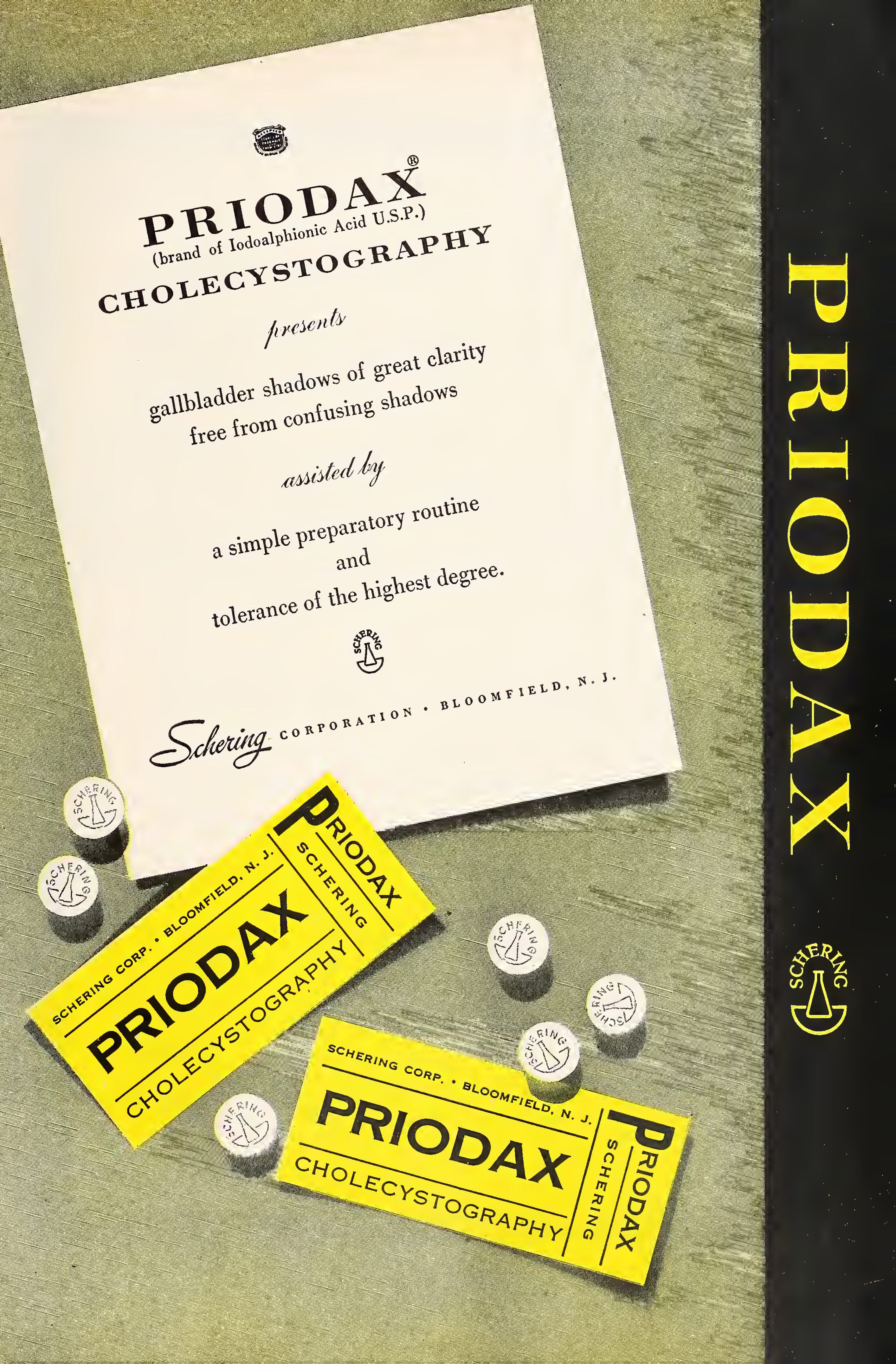

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Gray, L.: J. Clin. Endocrinol. 3:92 (Feb.) 1943.

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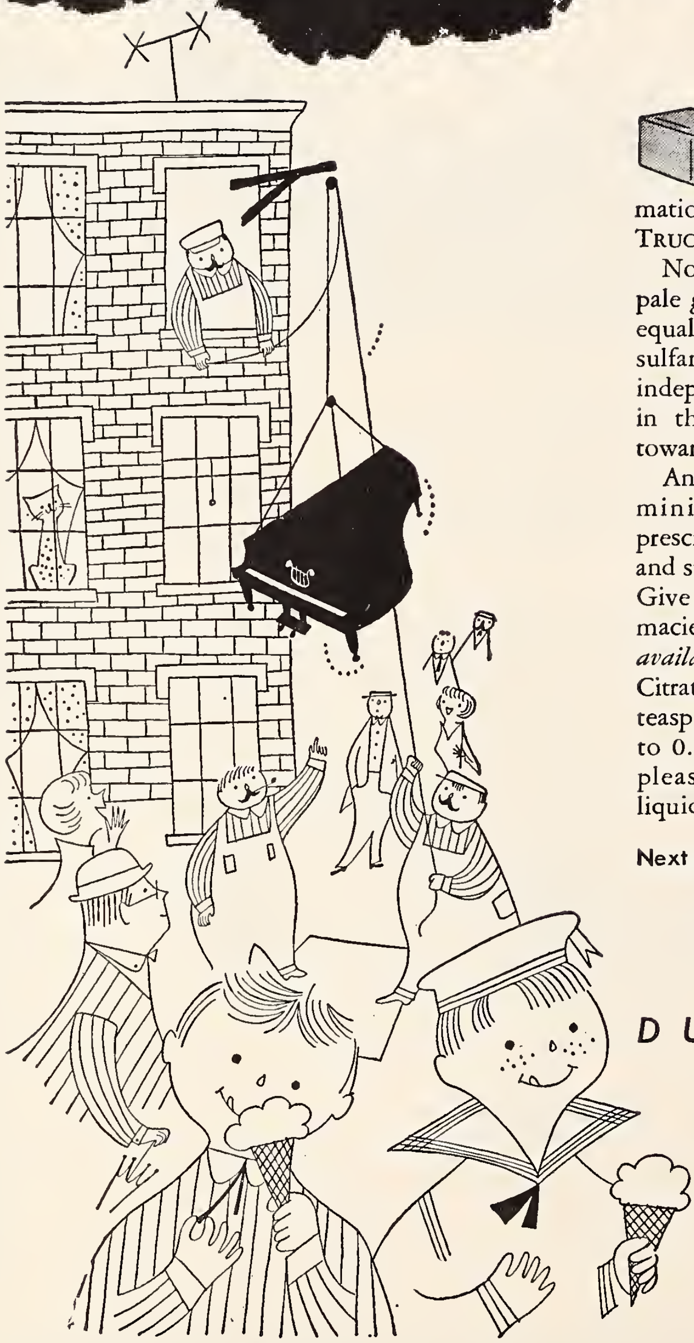

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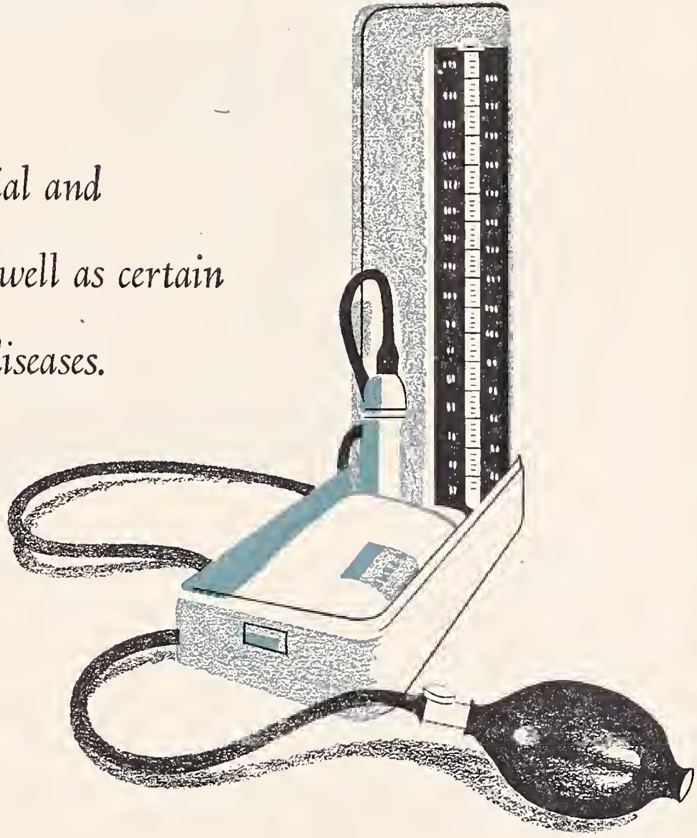

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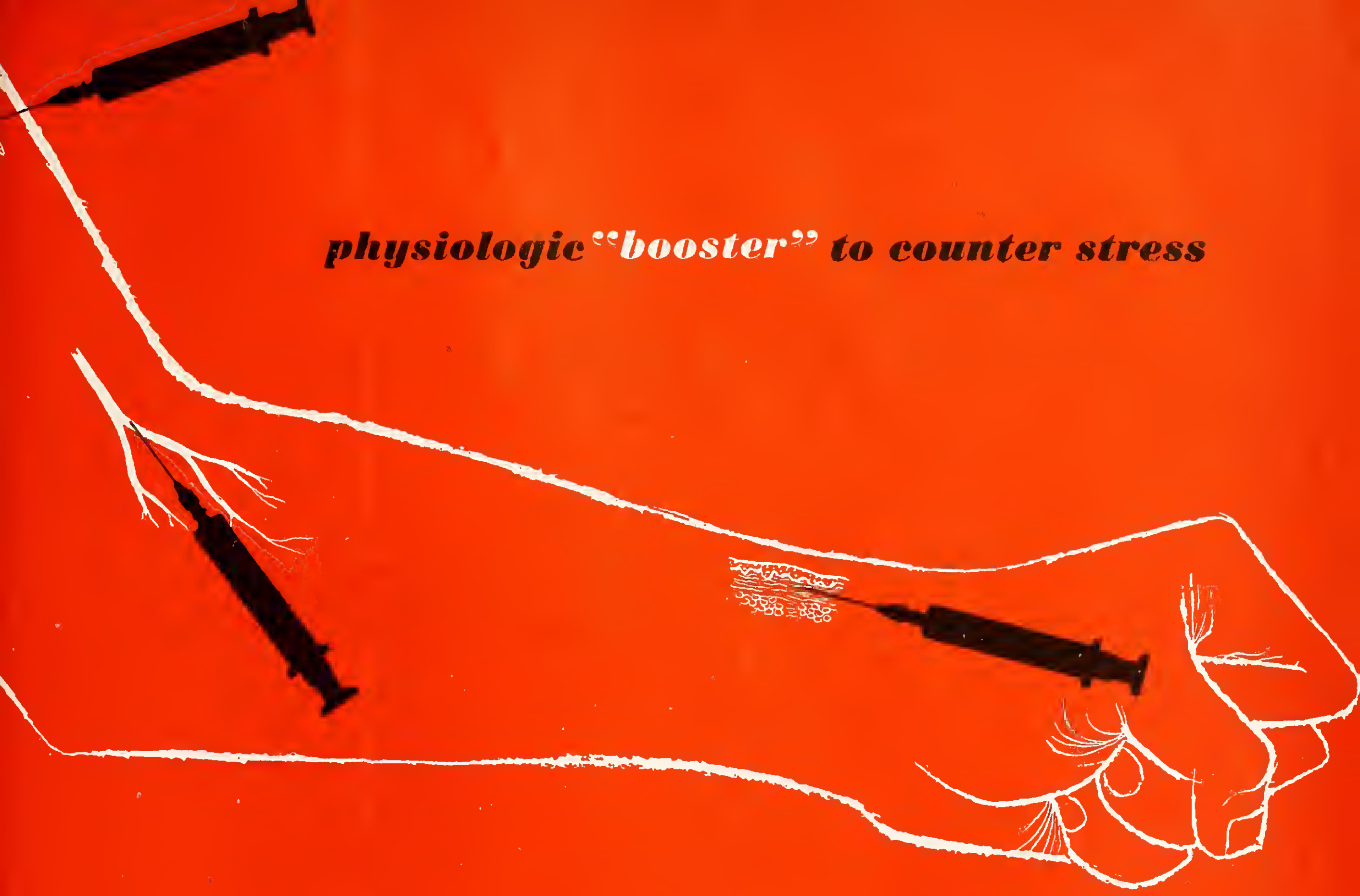
1. From Burton Stevenson's "Home Book of Proverbs, Maxims and Familiar Phrases:" Macmillan Co., 1948, p. 2028.
2. Heiler, E. M.: The Treatment of Essential Hypertension. *Canad. Med. Assn. Jour.*, 61:293-299, Sept., 1949.



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Minnesota Medicine

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

Volume 34 December, 1951 Number 12

THE CHANGING MOLE

S. WILLIAM BECKER, M.S., M.D.
Chicago, Illinois

THE threshold of suspicion for malignant disease is probably lower now among American physicians and laymen than at any previous time. There is more study and discussion of malignant processes. Much of this zeal springs from the interest and activity of organizations such as the American Cancer Society, which is devoting a great deal of energy in obtaining financial support, to be allocated to worthwhile projects in research institutions. The federally supported National Cancer Institute has for years carried out research in the field of malignancy. Many universities and hospitals have maintained cancer clinics, at which the skill and knowledge of physicians in various fields of medicine are pooled in the interest of the patients with possible malignant disease. There are many smaller organizations dedicated to research and treatment of cancer.

There is most interest in real cancer (carcinoma), including cancer of the skin, because of its frequency, but malignant neoplasia of other tissues has by no means been neglected. We are interested today in a neoplasm which is less frequently seen, namely, melanoma, and, specifically, melanoma originating in the skin. Its infrequency is both fortunate and unfortunate; fortunate for our patients, but unfortunate for physicians, because of limited opportunity for becoming familiar with it, so that, at present, the threshold of suspicion is maintained at too high a level. Miescher found that, at the University of Zurich, Switzerland, cutaneous carcinoma outnumbered melanoma 20:1. In areas with a high proportion of sunshiny days and a correspondingly greater incidence of cutaneous carcinomas, the ratio would undoubtedly be much higher.

For our purpose today, the word "mole" is used in the sense of a pigmented nevus,[5] along with its non-pigmented relative, the non-pigmented nevus. By "changing mole" we mean a nevus exhibiting clinical and/or microscopic alteration leading to malignant melanoma, commonly known simply as "melanoma." A pigmented nevus is best considered as a benign tumor of pigment-forming cells, which are known as melanoblasts. Melanoma is a malignant tumor of pigment-forming cells. These cells originate from the neural crest during embryonic life, from which location they wander out to the skin, the eyes and the pia mater about the medulla. Melanoma which has originated in other parts of the body must have arisen from misplaced melanoblasts, or may constitute a misnamed tumor, such as "melanoma" of the adrenal gland, which most authorities believe is not a true melanoma. Melanoma resembles nervous tumors of a malignant nature in its resistance to roentgen and radium irradiation, in contrast to cancer of the skin, which is relatively radiosensitive.

Pigmented Nevi

Pigmented nevi are among the most common of benign tumors. Pack[14] found that each adult person has an average of twenty such lesions. They are located more frequently on the face, neck, trunk and upper extremities, infrequently on the genitalia and feet, and are almost unknown on mucous surfaces. Melanoma, on the other hand, is most frequent on the face, genitalia and feet,

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From the Section of Dermatology, Department of Medicine, University of Chicago.

Presented at the annual meeting of the Northern Minnesota Medical Association, Virginia, Minnesota, August 24-25, 1951.

and does occur, but less often, on mucous surfaces. This contrast between the sites of predilection for nevi and melanoma makes one wonder whether such malignancy does originate most frequently in nevi, as has been stated by so many authors.

Pigmented nevi vary from smooth brown macules through elevated papular tumors to large hairy lesions covering much of the body (bathing trunk nevus). The mole which becomes malignant is usually the smooth brown lesion. Elevated nevi, with or without hairs are not common offenders. However, extensive moles have become malignant, even before puberty. They also are often associated with melanosis of the pia mater about the medulla, which may result in benign or malignant tumor of the area, with symptoms of brain tumor.

Microscopically, according to Lund and Stobbe[12] a young nevus consists of nevus cells, containing a varying amount of melanin, in close apposition to the epidermis, with or without unpigmented cells deeper in the dermis. In the older nevi, all cells may be deep in the skin. This variety of nevus is the one most frequently seen, and is the common mole of Traub and Keil.[21] The nevus cells may be fusiform or oval, and resemble melanoblasts rather than epidermal cells. Nevi in which there is active multiplication of nevus cells at the epidermo-dermal junction are known as active nevi. The designation "junction type nevus," frequently seen nowadays, includes quiescent nevi with nevus cells at the epidermo-dermal junction, active nevi with cells in the same location, and lentigo maligna; hence, both benign and malignant growths. Therefore it cannot be an accepted term. Some non-pigmented nevi resemble neurofibromas.

Treatment of Nevi

The consensus is that moles at sites of irritation should be removed, preferably before puberty. Surgical excision is satisfactory, and is always indicated for nevi that are enlarging or becoming darker. My own preference[4] is for snipping off the superficial portion of an elevated quiescent nevus and cauterizing the base for a good cosmetic result. The removed portion is always biopsied, so that any malignant change can be determined. All excised tumors should be sent to the laboratory for biopsy.

Acquired Nevi

Acquired nevi are those which appear after early childhood. A good illustration is the remarkable case of Ebert,[9] as follows:

Case 1.—A boy, aged twelve, presented several hundred papules, first noted eight months previously on the covered parts of the body and the backs of the hands, with a predilection for the extensor surfaces of the arms, the buttocks and the posterior surfaces of the thighs. They were increasing in number and varied in color from flesh color to brown. Over a period of two years one of the lesions on the buttock became coal black and many others became black and assumed the appearance of ordinary pigmented nevi. Four years after first being seen, no new lesions were appearing. Some of the original ones were brownish red and some were coal black.

Microscopic examination showed the tumors to be composed of cells having the appearance of young nevus cells, some of which were still in close association with the epidermis and others were in masses in the dermis. They were all strongly dopa positive, although very little melanin had formed as yet.

Mongolian Spot and Blue Nevus

Mongolian spots (sacral spots) and blue nevi are bluish macular or slightly elevated lesions containing pigmented melanoblasts in the dermis. Mongolian spots are present at birth in a large percentage of children of the dark races and tend to fade out over a few years. Blue nevi are smaller and darker and may appear at any time during early life. I have never seen melanoma develop in a blue nevus, and the reported cases of such development are not very convincing. Treatment of blue nevus is excision.

Precipitating Factors in Melanoma

The cause of melanoma is that of malignant disease in general, many etiologic factors of which are only imperfectly understood. Family history is almost unknown. The unusual reports of family incidence suggest that occurrence in more than one member is probably coincidental. Sunlight does not seem to be prominent as a precipitating factor, although the common appearance on the face has been advanced in its support. Irritation appears to play a definite role. Daland and Holmes[8] reported the influence of trauma in seventy of 174 cases, Amadon[2] in eleven of twenty-seven cases. Herold[11] reported the prominent role of trauma in African Negroes, in whom most melanomas originate on the soles,

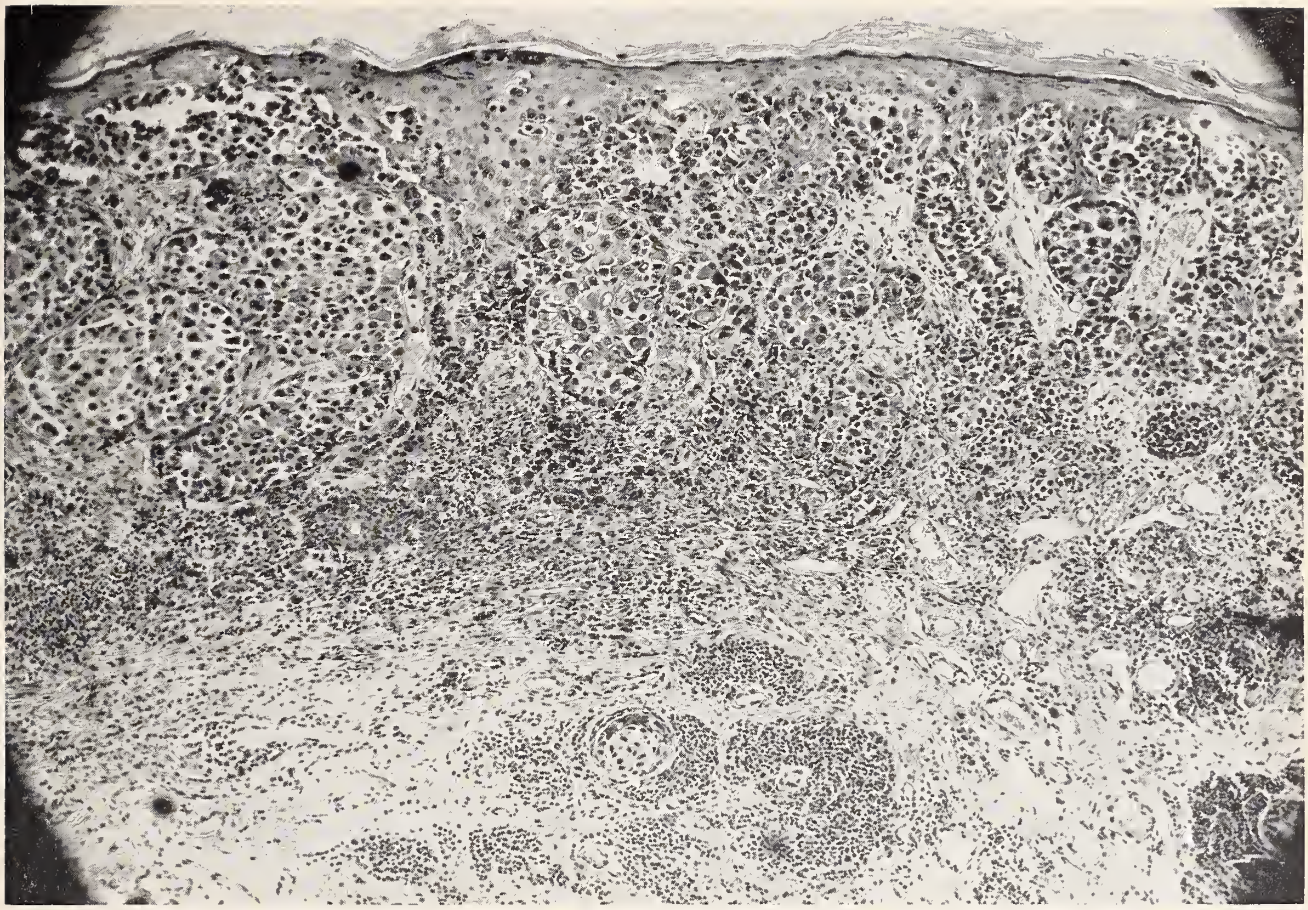

Fig. 1. Melanoma arising in nevus. Melanoma cells and lymphocytes are superficial and nevus cells are deep. (H&E stain, high power).

following injury from sharp objects, such as thorns.

According to Scharnagel and Pack,[18] puberty and pregnancy are periods of altered hormone balance which stimulates the formation and spread of melanoma. Spitz[20] called attention to the relative benignity of melanomas before puberty, and for this reason separated them from ordinary melanomas under the designation "juvenile melanomas." The possible stimulating effect of puberty and the probable stimulation during pregnancy are illustrated in the following case report (Ref. 4, Case 2):

Case 2.—A girl, aged sixteen, had always had a small pigmented nevus on her right shoulder. It had occasionally become tender because of irritation by a shoulder strap, had bled on occasions, and had been slowly enlarging. She presented a slightly elevated papule, brown in color, 3.0 by 5.0 mm. in size. The lesion was completely removed locally. Microscopic examination showed a superficial nevus, the center of which was composed of a solid mass of cells which was encroaching on both the epidermis and dermis. Diagnosis was made of early melanoma and the area was excised surgically. Seven years later, during pregnancy, a tumor was noted on the opposite side of the thorax in the region of a lower rib. It was removed surgically and was found to be a partially pigmented melanoma. In order to avoid further stimulating effect of pregnancy, cesarean section was performed at the eighth month and a normal baby was delivered. During a subsequent period of over one year, no further signs of melanoma have been observed. However, to avoid stimulation of any possible remaining melanoma cells, she has been advised to avoid further pregnancy.

Melanoma from Nevus

Determination of the actual percentage of melanomas that originate in pigmented nevi is difficult. If accurate history reveals that a pigmented lesion has been present since birth or early childhood, it must be assumed that a nevus existed. If both nevus cells and melanoma cells are found on section (Fig. 1), it is certain that a nevus has been present. Microscopic sections are not always adequate, because diagnosis is usually made on only a few sections, which may not show nevus cells if the melanoma has outgrown the nevus. Serial sections would be more informative.

Careful study has shown that melanoma can be proven to have originated in a pre-existing nevus in not over 25 per cent of instances. And even so, the actual malignant cells have their origin in normal melanoblasts at the epidermo-dermal junction rather than in nevus cells themselves. Pathologic theory states that malignant cells do not arise directly from benign neoplastic cells. Daland and Holmes[8] found that only 18 per cent of melanomas originated in pigmented nevi. In specimens examined in the Dermatological Laboratory of the University of Chicago, about 23 per cent can be seen to originate from nevi. Miescher, at the University of Zurich, Switzerland, found such origin in 25 per cent of cases.

Lentigo Maligna

Clinically, melanoma originates in the other 75 per cent of cases as a brown macule, at first smooth and non-elevated, which was originally described by Johnathan Hutchinson as a "malignant freckle." Dubreuilh translated this designation into French as "lentigo malign," which in English is "lentigo maligna." "Lentigo" means an acquired brown spot, and "maligna" denotes its malignant nature. Lentigo maligna appears after puberty, enlarges slowly and unevenly, and shows various degrees of light and dark brown color. After a few months or years, serum exudes and, eventually, bleeding occurs. Later, a tumor forms, which may be pigmented or non-pigmented melanoma. The following case report is illustrative:

Case 3.—A housewife, aged forty-nine, had developed a small dark brown spot on the lateral surface of the right ankle about four or five years previously. It enlarged irregularly, and she had been referred by her family physician to a dermatologist one and one half years before being seen. He had advised observation. Three or four months ago serum oozed from the lesion and it later bled. She consulted a second dermatologist, who removed a specimen for biopsy. Microscopic examination (Fig. 2) showed pronounced round cell infiltrate in the superficial dermis. At the epidermo-dermal junction were large numbers of large, succulent, partly pigmented cells, which were working their way to the epidermal surface and also penetrating into the dermis. This is typical for lentigo maligna. When seen, she presented a geographic lesion 2.0 by 3.0 cm. in size, very slightly elevated, with a color varying in different parts from light to dark brown. The area was widely removed surgically and the defect was skin-grafted.

Of course, it must be remembered that pigmented nevi also enlarge as the person becomes older, become slightly darker and, if injured sufficiently, will bleed. A nevus in which melanoma has developed enlarges more rapidly, becomes more deeply brown or black, and tends to bleed on slighter trauma. Pigmented melanoma can only be diagnosed clinically in 50 per cent of cases. Biopsy is essential.

Non-pigmented Melanoma

Non-pigmented melanoma appears in a variety of forms. Some of them simulate verruca vulgaris, especially one that has been irritated or infected. The most common picture is that of a reddish, soft tumor which bleeds on trauma, and closely simulates granuloma pyogenicum. The following case report is illustrative:

Case 4.—A woman, aged forty-three, a farmer's wife, had had a mole on her calf all her life. It had grown in the past two years and had bled after having been pecked by a chicken on two occasions. Clinical diagnosis was made of granuloma pyogenicum. The tumor was excised. Microscopic examination showed non-pigmented melanoma. Diagnosis of non-pigmented melanoma can only be made by biopsy.

How has the misconception arisen that most melanomas have originated in pigmented nevi. Several reasons seem apparent:

1. Lack of careful history. With the exception of the acquired variety, which is rare, nevi appear early in life.
2. Lack of careful clinical examination. Quiescent nevi can usually be differentiated from the more rapidly growing lentigo maligna or melanoma.
3. Failure to biopsy all tumors. This procedure is now considered a *sine qua non* for accurate diagnosis of melanoma. Biopsy is safe if adequate treatment is carried out as soon as microscopic diagnosis is made.

Clinical Course of Melanoma

The clinical course of melanoma is inclined to be regular. There is first of all relatively rapid local growth. There is at times local lymphatic extension appearing in the form of satellite lesions, ordinarily along the lymphatics draining the area. The regional lymph nodes will eventually become enlarged. Only biopsy will reveal the presence of melanoma cells in such nodes.

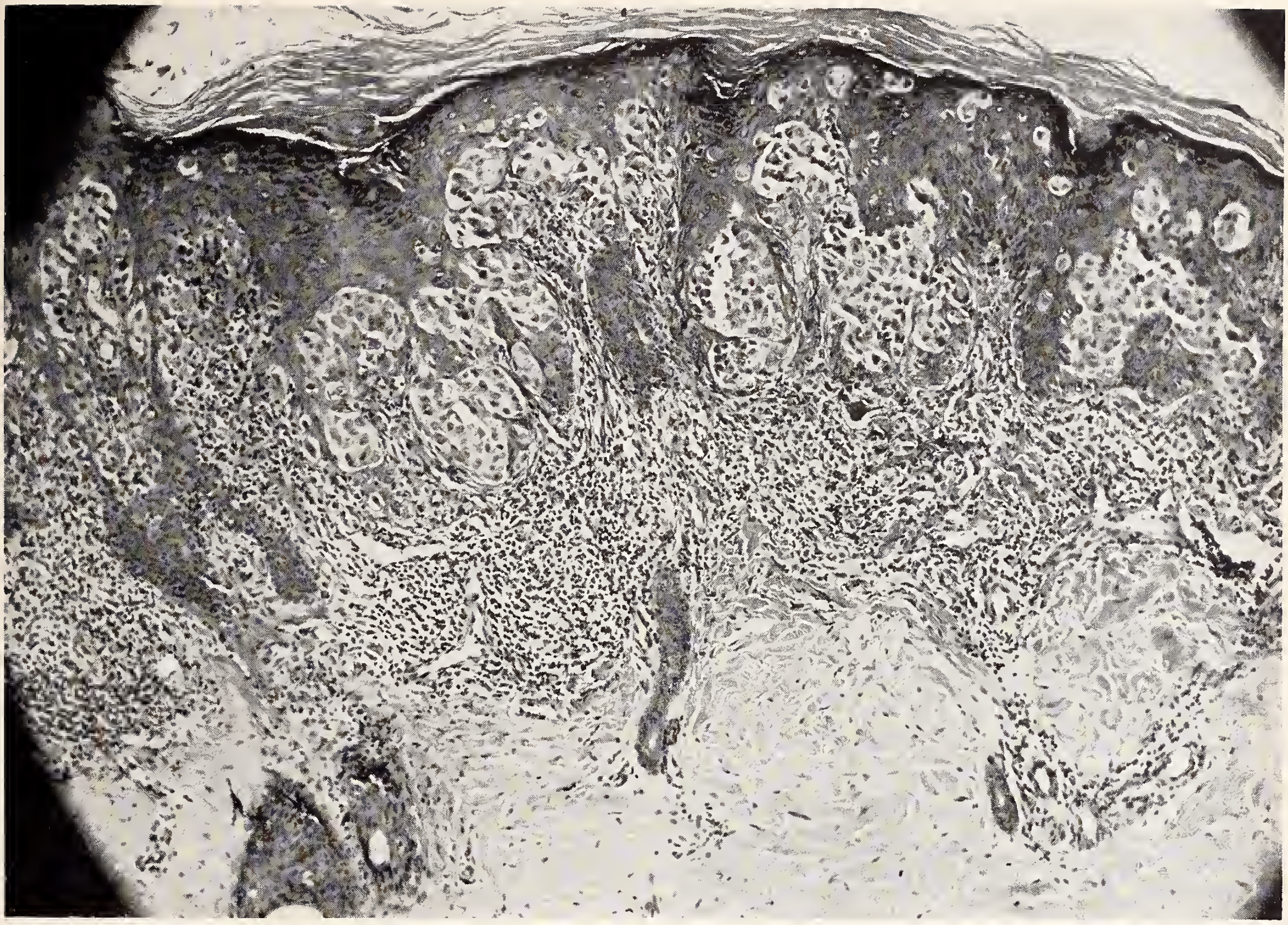

Fig. 2. Lentigo maligna. Melanoma cells and lymphocytes are superficial. No nevus cells are present. (H&E stain, high power).

Systemic dissemination will subsequently follow, with tumor cells appearing in practically any tissue of the body. The urine may become darkened (melanuria), and the entire body may become practically black (systemic melanosis). Ackerman[1] stated that 10 per cent of melanomas are first noted as metastatic growths in the regional lymph nodes. Further search ordinarily reveals a primary lesion or a history is obtained that a "mole" had been removed in the area of drainage. Selig[19] reported removal of a metastatic non-pigmented melanomatous mass from the groin of a forty-seven-year-old woman. Careful search of the lower limb revealed no primary growth. Four and one-quarter years later, a painless ulcer appeared on the right heel, which also showed non-pigmented melanoma on biopsy.

Mucosal Melanoma

Melanoma may appear on any of the mucocutaneous junctions or adjacent mucous surfaces. Since pigmented nevi are almost never seen on mucosal surfaces, the origin is from a blackish macule corresponding to the cutaneous lentigo maligna. Spread to regional lymph nodes seems to appear somewhat sooner than from the cutaneous surface, possibly because of greater vascularity of the regions.

Treatment of Melanoma

Treatment of melanoma consists of removal. Various other therapeutic measures, such as roentgen and radium irradiation, administration of Coley's fluid, colloidal lead, and various radioactive isotopes have been unsatisfactory. Soon after Willy Meyer and Halsted[10] independently, in 1894, introduced the principle of dissection in continuity, i.e., removal of the breast, lymphatic channels and lymph nodes in one piece, the method was applied by Pringle[16] to treatment of melanoma:

> A girl, aged seventeen, presented a melanoma on the left forearm of two years' duration. There had been no pre-existing mole. In 1898, a strip of tissue 2 inches in width was excised and the axillary lymph nodes were removed. They were found to contain metastatic tumor growth. She was again presented[17] thirty-eight years

after operation, during which time she had had no recurrence. A second patient, a man, aged thirty, presented a melanoma, 3.0 by 4.0 cm. in size, of two years' duration, on the left thigh, originating in a mole that had been present since birth. The primary growth was removed, along with a strip of tissue up to and including the lymph nodes as far as the bifurcation of the common iliac artery. Metastatic melanoma was found in the lower iliac but not in the upper iliac nodes. The patient was redemonstrated thirty years later,[17] during which time he had had no recurrence.

The same principle of dissection in continuity was applied to malignancy of the rectum by Sir Ernest Miles[13] and to the vulva by Bassett.[3] It is useful for melanoma occurring in these regions. Pack, Scharnagel and Morfit[15] stated that application of this method to treatment of melanoma requires considerable ingenuity, because the malignant melanomas are so variable in their location and drain into so many groups of regional lymph nodes. Pack[14] has recommended an even more radical operation in some instances of advanced melanoma of the extremities, namely, disarticulation at the hip or amputation of the arm and shoulder girdle, as the case may be. Many surgeons hesitate to perform such a radical operation, even though they would not hesitate to amputate for sarcoma of the bone.

Prognosis of Melanoma

Prognosis of melanoma was formerly practically hopeless. Boulay[6] in 1888 collected 191 cases from the literature, of which 152 had been operated on. From the clinical descriptions, the process was usually already far advanced and hopeless, but, even so, there were a few survivors following radical surgical operation. Following radical surgical treatment, Pack,[14] in 1948, stated that in the past fifteen years, their percentage of patients who have survived five years without recurrence, that is to say, the incidence of so-called definitive cures, had increased 600 per cent, surely an improvement far greater than that obtained with almost any other common variety of cancer. Still, Pack's percentage of five-year survivals without metastases to lymph nodes is only 18 per cent, and for melanoma metastatic to regional lymph nodes and treated by surgical means is only 15 per cent. Five-year survival is not as significant in melanoma as in some other malignant tumors because of the tendency to late recurrence. Wilbur and Hartman[22] found local recurrence as late as nine years and nodal metastasis as late as thirteen years. However, with early diagnosis and radical surgical treatment, the prognosis should improve greatly. Many lives can be saved by prompt and adequate diagnosis and treatment. Capra and Ewing[7] recently stated: "Serious as is the outlook for the patient with a malignant melanoma, heroic resection will often salvage what appears to be the most hopeless case."

Summary

1. Melanoma arises in a pigmented mole in not over 25 per cent of cases; it usually originates in normal skin in the form of lentigo maligna.
2. All suspected lesions must be biopsied.
3. Post-pubertal melanoma is more serious than the prepubertal variety.
4. Treatment of melanoma is surgical, and must be radical.
5. Prognosis is greatly improved by earlier diagnosis and more radical surgical procedures.

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CONGENITAL OBSTRUCTION OF THE ALIMENTARY CANAL IN THE NEWBORN

DAVID P. ANDERSON, M.D., and ROBERT R. WRIGHT, M.D.
Austin, Minnesota

CONGENTIAL obstruction of the alimentary canal has received increasing consideration during the past few years since it has been demonstrated that the various types of such obstruction are amenable to surgical treatment. It is now evident that these lesions are much more common than previous reports would indicate, and in all probability many congenital obstructions of the alimentary canal are still being overlooked. Evans[1] in an exhaustive study of atresia of the gastrointestinal tract, including the esophagus and ano-rectal region, estimates that this particular anomaly occurs in approximately one in every 1,500 births. He believes "it is less considered and more unheeded, than uncommon."

The authors wish to report the incidence and cases of congenital obstruction of the alimentary canal among the 4,374 live births in the St. Olaf Hospital, Austin, Minnesota, during the five-year-period ending December 31, 1950. It is our opinion that these congenital anomalies may be more easily overlooked in a predominantly rural area, such as ours, where a special academic interest in such matters may be lacking. It is particularly important that general physicians, who supervise the care of the majority of newborn infants, be especially alerted to the problem.

A review of the 4,374 live-births in the St. Olaf Hospital for the five-year period ending December 31, 1950, was undertaken by one of us (R.R.W.). There were seventy-four neonatal deaths, an incidence of 16.91 per 1,000 live births. This compares very favorably with the reported incidence of neonatal deaths per live births from other surveys. A careful review was made of each neonatal death. Only one of these neonatal deaths could be attributed to congenital obstruction of the alimentary canal. This case is reported below.

There were three newborn infants with complete congenital obstruction of the alimentary canal who survived. A brief report of each patient is given below. Fourteen infants with congenital pyloric stenosis, all treated successfully by operation, were seen by the authors during the five-year period of this survey. These cases are not specifically included in this report, nor does the number of cases of this disease necessarily represent its true incidence in relation to the number of live births.

Case Reports

Case 1.—R. D. Birth weight, 7 pounds. Girl.

The diagnosis of complete atresia of the third portion of the duodenum was established by the family physician, Dr. C. L. Sheedy. Duodenojejunostomy was performed when the infant was fifty-eight hours old. Recovery was uneventful. The infant was discharged on her eighth postoperative day. This patient is now a healthy, normal child, three and one half years of age.

Case 2.—F. F. Birth weight, 5 pounds 10½ ounces. Boy.

The diagnosis of congenital atresia of the esophagus with a tracheoesophageal fistula was made within forty-eight hours of birth by Dr. F. H. Rosenthal. The infant had episodes of cyanosis and choking due to excessive thick mucus in the pharynx. An end-to-end esophageal anastomosis with closure of the tracheoesophageal fistula, without an associated gastrostomy, was performed four days after birth. The infant was discharged on the eleventh postoperative day. Several esophageal dilatations with a Philip's urethral bougie were performed as office procedures. An ano-rectal stenosis also required several dilatations. This patient is now a healthy child, ten months of age.

Case 3.—B. N. Birth weight, 6 pounds, 13 ounces. Girl.

Symptoms of partial intestinal obstruction dated from birth, but the diagnosis of complete obstruction was not made until the eighth day. Operation revealed a duodenal obstruction, partial, due to incomplete rotation of the cecum and an associated volvulus of the midgut. The operation described by Ladd and Gross[2] was performed. The infant was discharged on the tenth postoperative day. She is now a healthy infant, seven months of age.

Case 4.—B. H. Birth weight, 5 pounds 10 ounces. Girl.

The diagnosis of congenital atresia of the esophagus with tracheoesophageal fistula was not established until forty-eight hours after birth. The infant had excessive mucus, cyanosis and difficulty in breathing the day of birth and died three days after birth. Operation was not performed because of the patient's poor condition. An autopsy was not obtained.

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THE USE OF ADRENOCORTICOTROPHIC HORMONE IN THE TREATMENT OF MYASTHENIA GRAVIS

S. K. SHAPIRO, M.D.
Minneapolis, Minnesota

> "I have now a prudent and honest woman in cure, who for many years has been obnoxious to this kind of bastard palsy, not only in her limbs but likewise in her tongue. This person for some time speaks freely and readily enough, but after long, hasty or laborious speaking presently she becomes mute as a fish, and cannot bring forth a word. Nay, and does not recover the use of her voice until after many minutes."

THUS, in 1685, Willis[1] in somewhat graphic terminology recorded the first description of a patient with myasthenia gravis. Basic contributions to the knowledge of this condition have subsequently been made, but not until 1934 was there any significant advance in the treatment of this "bastard palsy." Walker[9,10] in that year made her classical report on the use of eserine and then subsequently prostigmine in the treatment of the symptoms of myasthenia gravis. Other therapies have been used which give additional aid to some patients with myasthenia gravis; none of these, however, has supplanted prostigmine. With the advent of ACTH it was hoped that a new therapeutic era might be opened to patients with myasthenia gravis.

Although less than thirty reported cases have received this therapy to date, it has become apparent that ACTH is not the panacea for patients with myasthenia gravis. Its use is not without danger but nevertheless some patients have been reported to have obtained definite improvement. A backlog of experience will be necessary before the final role of ACTH in the treatment of myasthenia gravis can be delineated. We have recently treated three patients with myasthenia gravis with ACTH, and it is felt that a report of our experience with these patients plus a review of the literature on this subject might prove of interest.

Review of the Literature

In 1948 Soffer et al[5] reported that the administration of 400 milligrams of ACTH to a patient with myasthenia gravis, with a thymic tumor, resulted in a marked decrease in the size of the tumor, a marked improvement in the clinical symptoms, and elimination of the daily necessity for prostigmine. In 1949 Torda and Wolff[6] administered a course of 400 milligrams of ACTH to each of five patients moderately to severely ill with myasthenia gravis. These patients during the three years before their study began had experienced minor transient fluctuations but no long-lasting nor significant changes in their clinical states. During the period of administration the patients experienced an increase in disability. The second day after completion of the series of injections the patients experienced changes suggesting the beginnings of an incomplete remission of the disorder. This consisted of marked improvement of muscle function while on appreciably reduced neostigmine bromide. Subsequently Torda and Wolff[7,8] reported further on their experiences with ACTH in myasthenia gravis. In their last report they reviewed the effect of ACTH on fifteen patients with this condition. Five patients received two courses of ACTH and two patients received three courses of ACTH. Ten patients exhibited a significant partial remission, and for four the results were inconclusive. One of the patients with so-called bulbar manifestations died on the third day of administration of ACTH. A new series of ACTH induced further remission in all patients to whom it was administered. Millikan and Eaton[2] administered ACTH and cortisone to five patients with myasthenia gravis. There was a history of long-term myasthenia without remission in every instance, and in two of them the disease was gradually becoming more severe. Two of the patients received three and two courses of ACTH ranging in dosage from 800 milligrams to 1,500 milligrams per course. Three of the patients received cortisone therapy in total doses ranging from 1,300 to 1,500 milligrams. One patient who received cortisone needed respirator care and tracheotomy three days after the completion of the course and subsequently succumbed eight days later. In three of the patients transitory improvement was observed. Shy et al[4] treated one myasthenic with cortisone. This patient was

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From the Department of Neurology, University of Minnesota Medical School, Minneapolis, Minnesota.

made worse by cortisone but returned to his previous status on the discontinuance of treatment.

Case Reports

Case 1.—The onset of myasthenia gravis in this white woman, born in 1922, was in January, 1944, when she developed ptosis of the right upper lid. Subsequently, she developed dysarthria, dysphagia, easy fatigability, and difficulty with mastication. Her myasthenia remained mild and was controlled on 30 to 75 milligrams of prostigmine hydrobromide per day. During her second pregnancy, commencing in October, 1946, and for four months after delivery, she required no prostigmine. Gradually her myasthenia gravis increased in severity and 345 milligrams of prostigmine hydrobromide per day were required to control her symptoms. In April, 1949, it was necessary to impose some limitation of her activities and in spite of this the patient commenced to lose weight. An acute exacerbation of her condition was precipitated in April, 1949, by an upper respiratory infection, and hospitalization was necessary at this time, during which the patient received intramuscular prostigmine. The patient was again hospitalized on June 16, 1949, for regulation of her medication following an episode of diarrhea and vomiting. On discharge from the hospital the patient was receiving 270 milligrams of prostigmine per day plus ⅜ of a grain of ephedrine three times a day. During the month of September her prostigmine requirements increased to 375 milligrams of prostigmine hydrobromide per day, and it was necessary to markedly restrict her activities.

Her third admission to the University Hospitals was in September, 1949, and this was precipitated by an upper respiratory infection. Examination on admission to the hospital at this time revealed an acutely ill patient. There was a marked bilateral ptosis, a marked dysarthria, and all the ocular muscles were weak, especially the right internal rectus and the right inferior rectus. A weakness of the palate and tongue could be demonstrated. There was a weakness of all the facial muscles, and a slight diaphragmatic weakness was present. Intramuscular and oral prostigmine failed to control her symptoms and consequently intravenous administration of prostigmine was commenced on her second hospital day. The prostigmine methylsulfate was dripped in at the rate of .5 mg. (1 ampoule) per hour. The patient felt comfortable in this regime. About two hours after the onset of the intravenous administration the patient choked while cleaning her teeth, and following this there was an excessive outpouring of mucus. The rate of intravenous administration was increased, and as the patient complained of flushing, headache, and intestinal discomfort, the intravenous was temporarily discontinued. Four minutes later the patient experienced great difficulty in breathing, and while being placed in a mechanical respirator, her respiration stopped completely and she became comatose. Seconds after the institution of mechanical respiration she regained consciousness and her color improved. One milligram of prostigmine methylsulfate was given intramuscularly, and the patient once more became comfortable. A nasal tube was passed in order to aid in the nutrition of the patient. During the next twelve-hour period her prostigmine requirements were .5 mg. of prostigmine intramuscularly every hour, and three doses of gr. 1/100 atropine were injected to control the side effects of the prostigmine.

On the evening of September 19, the patient's condition continued to deteriorate. Her dysarthria and dysphagia were marked and frequent suctioning was necessary as the secretions continued to be a problem. The patient was able to breathe only for short periods without the respirator and her prostigmine requirements became .5 mg. per hour via the intravenous drip and .5 mg. intramuscularly per hour. On the morning of her third hospital day the patient had a sudden outpouring of secretions, became unable to breathe, and lapsed into coma. Within a matter of a minute and a half the patient was intubated and oxygen administered, and the patient regained consciousness. A tracheotomy was then performed, and this was followed by bronchoscopy, by means of which considerable mucus was removed from the left lower bronchus. On the afternoon of the third hospital day ACTH administration was commenced at six-hour intervals and a total of 100 milligrams was given during the next thirty-hour period. As the patient's immediate course did not appear to be benefited, the ACTH was discontinued at the end of the thirty hours.

The patient's condition continued to deteriorate. She became increasingly restless, and on the evening of the fourth hospital day her prostigmine requirements had reached .6 mg. per hour via the intravenous route and .5 mg. of prostigmine per hour intramuscularly. After several hours of this increased rate of prostigmine administration the patient's restlessness increased and she became psychotic. She complained of claustrophobia and developed auditory and visual hallucinations. She ripped out her intravenous needle and was without intravenous prostigmine for a period of two and one-half hours. Ten minutes following an injection of .5 mg. of prostigmine intramuscularly, muscular twitchings developed, the patient became comatose and failed to respond to painful stimuli. The prostigmine requirements were adjusted to one-half ampoule every half hour and the patient regained consciousness. Her psychotic behavior continued, and after consultation with Dr. I. M. Eaton it was decided that the patient had become prostigmine-fast and that she was now developing toxic symptoms from the prostigmine. The prostigmine therapy was discontinued and for the next twelve days the patient received only ephedrine, 20 milligrams, three times daily.

The patient in the respirator received the same type of care as is administered to patients with bulbar poliomyelitis which has been described in a previous publication.[3] One gram of potassium chloride was added to her intravenous feedings daily. The patient's condition gradually improved and she was able to stay out of the respirator for longer periods. Her degree of oxygenation was followed by means of the oxymeter. On the sixteenth hospital day oxygen therapy was discontinued. On the eighteenth hospital day the patient was removed from the respirator and prostigmine therapy was recommenced. Her dosage was adjusted and it was possible to keep her comfortable on 90 milligrams of prostigmine hydrobromide per day and she was discharged from the hospital.

At home the patient was maintained as a bed patient. She remained comfortable and gained weight. This partial remission persisted until December, 1950, when her prostigmine requirements once more commenced to climb, and it was felt that the patient once more was going into an exacerbation of her disease. She was admitted March 22, 1950, to the University Hospitals for an elective course of ACTH therapy. At the time of her admission she was taking 255 mg. of prostigmine per day and three tablets of ephedrine, grains 3/8, daily.

ACTH therapy was commenced at 20 milligrams every six hours. Concommitant with the ACTH administration the patient became restless and developed insomnia. On the third day of ACTH administration the dosage was reduced to 20 milligrams twice a day. On the fourth day of ACTH therapy one-half hour after an injection of ACTH the patient complained of shortness of breath, difficulty in breathing, and pooling of secretions. Her condition continued to deteriorate and on the fifth day of ACTH therapy it was necessary to place the patient in a respirator and the ACTH was discontinued. A total dosage of 280 milligrams was administered. Coincident with the worsening of her clinical condition her prostigmine requirements increased. Following the discontinuance of the ACTH the patient commenced to improve and she went into an amazing partial remission and at the time of her discharge on March 30, 1950, her prostigmine requirements had dropped to 195 mg. per day with a definite improvement in her strength and general condition. The patient continued to improve, and when seen in April, 1951, her prostigmine requirements had dropped to between 80 and 120 mg. of prostigmine hydrobromide per day. At this dosage she was able to carry on normal activities and compared her condition to the way she had felt during the remissions associated with her second and third pregnancies. On neurological examination the only abnormalities which could be demonstrated were bilateral paresis of the orbicularis oculi and slight paresis in the left upper extremity.

Comment.—This patient demonstrates the difficulties in handling an acute exacerbation of myasthenia gravis. The administration of ACTH during an acute phase of her disease appeared to cause a worsening of her condition. Subsequently a partial remission developed. Following a second course of ACTH there was a definite improvement of the patient's condition, and she entered an amazing remission of her disease which has persisted for a one-year period.

Case 2.—This white woman, aged twenty-seven, had the diagnosis of myasthenia gravis established in 1948 following the insidious onset of progressive muscular fatigue, weakness of grip, dysphagia, and episodes of diplopia and ptosis. She responded well to prostigmine therapy at this time. Shortly after the diagnosis had been established, the patient became pregnant, and commencing at the fourth month of her pregnancy and persisting to three months post-partum, the patient entered a marked remission of her disease with a sharp decrease in the amount of prostigmine which she required. However, the muscular fatigue and dysphagia again became more pronounced and the dosage of her prostigmine was gradually increased until she was taking 240 mg. of prostigmine hydrobromide and 3/8 grains of ephedrine three times daily without relief of her symptoms.

Her condition remained about the same until a "boil" was lanced in her right ear. Following this her symptoms increased in severity and she was admitted to the University Hospitals on December 10, 1950. At the time of this admission to the hospital she complained of difficulty in breathing. There was paresis of the right medial rectus muscle. There was a nasal quality to the voice. The soft palate moved only slightly. There was a mild bilateral weakness of the tongue muscles. She weighed 88 pounds, having lost 22 pounds since the onset of her illness. One day following her admission to the hospital the patient suddenly developed severe respiratory difficulty and inability to handle her secretions. She was placed in a respirator and a tracheotomy performed. Her prostigmine requirements increased until she was receiving .5 mg. prostigmine methylsulfate intramuscularly every two hours. In spite of the increased dosage of prostigmine the patient's condition failed to improve and her secretions of mucus were excessive. It was felt that the patient was prostigmine-fast and that the excessive secretions of mucus might represent a toxicity to the prostigmine. All prostigmine was discontinued and for ten days she received only 25 mg. of benadryl daily. On the eighteenth hospital day .5 mg. of prostigmine methylsulfate every two hours was recommenced, and the next day increased to 1.5 cc. every two hours. At the same time ephedrine 25 mg. three times a day was administered and atropine grains 1/200 was used as often as every four hours for control of the excessive mucus. The patient gradually improved and was able to stay out of the respirator longer on progressively smaller doses of prostigmine. On the forty-sixth hospital day the patient was switched to oral prostigmine. She was discharged on 180 mg. of prostigmine hydrobromide per day. At this dosage she felt "almost normal."

The patient was readmitted to the University Hospitals on February 21, 1951, for an elective course of ACTH therapy. The ACTH was administered in the hope it might prolong her remission. At the time of her admission to the hospital she was in a striking remission of her disease. No detectable muscle weakness could be demonstrated. She had gained 20 pounds and had been doing all her work. Her prostigmine requirements were 240 mg. of prostigmine hydrobromide per day. Following her admission to the hospital and the institution of bed rest, it was possible to reduce her dosage of prostigmine to 150 mg. per day. The patient was started on 20 mg. of ACTH therapy on the first day. This was increased 20 mg. per day until she was receiving 20 mg. every six hours. The total amount of ACTH administered was 380 mg. There was no evidence of any reaction to ACTH therapy at any time, and it was possible while she was receiving the ACTH to reduce her prostigmine requirements to 120 mg. per day. She was discharged on March 6, 1951.

When the patient was rechecked in the out-patient department on April 10, 1951, her condition was essentially unchanged. She found that she felt best on 180 mg. of prostigmine daily and ⅜ grain ephedrine three times a day. The patient commenced taking ephedrine one week prior to her out-patient visit and found that without the ephedrine she experienced fatigability and difficulty in eating.

Comment.—This patient's myasthenia gravis progressively became severe until she developed an acute exacerbation of her disease. Tracheotomy and respirator care were necessary. The patient became prostigmine fast. Her condition remained exceedingly precarious for nearly a month and at the end of this time she apparently began a spontaneous remission. The ACTH was administered when the patient was in a partial remission of her disease and at the time of this report had produced no appreciable effect on her condition. The role of ACTH in prolonging her remission will be difficult to determine.

Case 3.—This white woman, aged thirty-five, dated the onset for her illness to December, 1950, at which time she noticed that she was having difficulty walking. Her muscle weakness increased, and the diagnosis of myasthenia gravis was established at the University Hospitals on January 25, 1951. The patient was hospitalized for the regulation of her prostigmine requirements and was discharged improved on January 29, 1951. Shortly after her return home she commenced to have cyanotic episodes precipitated by emotional stress. In addition she began to have progressive difficulty in coughing up her tracheal secretions.

The patient was readmitted to the University Hospitals on May 10, 1951. Examination at this time revealed an extremely apprehensive patient who was seriously ill. Neurological examination revealed paresis of the third, fifth, seventh, ninth, tenth, eleventh and twelfth cranial nerves. There was a generalized muscle weakness. The patient was having difficulty breathing and the movements of the chest and diaphragm were decreased. The accessory muscles of respiration were being used. In spite of increased prostigmine administration, the patient continued to lose ground, and twenty-four hours after her admission an emergency tracheotomy was performed and the patient was placed in a mechanical respirator. On the third hospital day it was decided that the patient was prostigmine-fast, and consequently this drug was discontinued. On the tenth hospital day another trial of prostigmine therapy was attempted but due to the unfavorable response was discontinued after twenty-four hours. On the eleventh hospital day the patient developed pulmonary atelectasis, which was partially relieved by bronchoscopy. The patient failed to show any improvement and was maintained solely by the aid of the respirator and by good nursing care. It was felt that if something were not done to alter her course she would succumb, and ACTH therapy was recommended.

On her twenty-eighth hospital day ACTH therapy was commenced. During the next thirteen days she received 940 mg. of ACTH administered in 20 mg. doses. On the fortieth hospital day prostigmine therapy was recommenced without materially affecting her symptoms. On the forty-first day she suddenly became cyanotic and lost consciousness. The patient was bronchoscoped and a mucous plug removed. However, she failed to regain consciousness and expired on this forty-first hospital day.

Comment.—The patient was following a progressively downhill course at the time ACTH administration was commenced. The ACTH did not alter the course of her disease and the patient succumbed on the thirteenth day of ACTH therapy. At post-mortem she had bilateral bronchial pneumonia and a substernal thymoma.

Discussion

The exact action of adrenocorticotrophic hormone in patients with myasthenia gravis remains obscure. Torda and Wolff[8] have attempted to shed some light on this problem and present interesting data which indicates that the immediate cause of the symptoms of myasthenia gravis is a decrease of acetylcholine synthesis and the administration of ACTH increases acetylcholine synthesis *in vivo*. Further studies of this sort will be necessary before the mode of action of ACTH in patients with myasthenia gravis is completely understood.

The results of administration of ACTH to the three cases documented here parallel the results previously reported by others. In the first patient reported there was marked improvement, in the second no change, and the third patient succumbed while ACTH was being administered. The definite increase in muscle weakness necessitating respirator care in the first patient following the administration of 280 milligrams of ACTH serves to underwrite the danger of ACTH administration and the necessity for having available all facilities to handle a crisis. The suggestion of Torda and Wolff[8] that the severity of the symptoms during administration of ACTH seemed to be reduced by the concurrent daily administration of from 3 to 5 grams of potassium chloride by mouth during the period of administration of

ACTH and for one day thereafter is worth further trial.

The spontaneous remissions in the first and second patients reported they had been critically ill and no longer responded to prostigmine, stress the necessity for continuing to energetically treat all patients even though at times the outlook appears hopeless. The mechanism of such spontaneous remissions is not understood. It may be that the stress to which a patient is subjected during a crisis serves to cause an increased production of ACTH which is eventually a factor in inducing a remission. The effect of administering the first course of ACTH in the first patient is difficult to assess since she was in such poor condition at the time of this administration. However, it is our impression that the ACTH temporarily caused a worsening of her state. Our experience in administering ACTH to the first patient and to the third one, who was acutely ill and succumbed while receiving the adrenocorticotrophic hormone, leads us to agree with Torda and Wolff[7] that ACTH is not the medication of choice in patients who are moribund. Rather, it would appear best to rely on the conventional methods of treatment in the hope that a spontaneous remission (as in the second patient) will eventually appear.

The use of ACTH during a remission of myasthenia gravis in the hope of prolonging the remission (as in the second patient) is of doubtful value. In view of the natural fluctuations in the course of myasthenia gravis, many years of study would be necessary to determine the worth of this procedure. In the light of our present knowledge, it is questionable if patients with myasthenia gravis should be subjected to the dangers of ACTH therapy when clinically they are well. Such a procedure must be considered purely experimental.

The induction of the dramatic remission following the second course of ACTH in the first patient is in accord with the observation of Torda and Wolff[8] that repeated small courses of ACTH administration may be necessary.

It has become obvious from the reported experience with ACTH that this hormone is not a cure for myasthenia gravis. However, in some cases it has induced gratifying remissions. In the group of patients whose clinical condition is deteriorating in spite of adequate therapy, and in the group whose condition has become static with marked limitations of their daily activities, a course of ACTH deserves serious consideration.

Conclusion

1. A review of the literature on the use of ACTH in the treatment of myasthenia gravis has been recorded.

2. Three cases of myasthenia gravis treated with ACTH are reported. In one case an amazing remission of the disease followed the termination of the second course of treatment.

3. Because of the exacerbation of symptoms encountered in some patients receiving ACTH therapy, this therapy should be restricted to centers equipped to treat an acute exacerbation of the disease.

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UNRESOLVED PNEUMONIA

HAROLD H. JOFFE, M.D., and SIGURD E. SIVERTSON, M.D.
Duluth, Minnesota

THE literature is rather voluminous on the sequelae of pneumonia but relatively scant concerning unresolved pneumonia. The common use of such synonyms as: interstitial, chronic, fibrous, fibrosing, organizing, protracted, indurative or persistent pneumonia, illustrates how loosely the condition is labeled. These terms are often used to designate chronic pulmonary conditions without attempt to determine the underlying cause.

The purpose of this paper is to review the necropsy cases of unresolved pneumonia at Saint Luke's Hospital over a thirteen-year period from 1937 to 1950 inclusive. It is hoped that such a review will stimulate more thorough investigation as to the underlying pathology and thus avoid an erroneous diagnosis and an opportunity for a cure of a remedial condition.

Incidence

The reported incidence of from 2 to 6.3 per cent[10,17] depends on whether the series are based on clinical diagnosis or necropsy findings. In 125 necropsy cases of lobar pneumonia at the Bellevue Hospital over a two and one-half year period, non-resolution was found in four, or 3.2 per cent of cases.[22] At the Russell Sage Institute, ten (6.3 per cent) of 159 necropsy cases of lobar pneumonia were so diagnosed on pathologic examination.[17] In two series[14,24] totalling twenty cases, the ages ranged from twelve to sixty-seven years with predominance of males.

At this institution, out of a total of 2,538 necropsies, exclusive of live and stillbirths, unresolved pneumonia was encountered in twenty-two or about 0.9 per cent of cases. The age ranged from three and one-half months to ninety years. There were seventeen males and five females, for a ratio of about 3.5 to 1.

Etiology

The bacteriologic agents in pneumonia are not primarily implicated with the factors responsible for non-resolution.[1] There are a variety of underlying major etiologic factors and the term unresolved pneumonia is therefore often a clinical one and not an expression of a specific pathologic entity or etiology.[5] The majority of cases have their origin in some other underlying pathology.[2,5,6,10,13,15,18,19,20,23,25]

In a series[5] of fifty-two cases diagnosed as unresolved pneumonia, impaired bronchial drainage of varied etiology accounted for twenty-two (42.3 per cent) with four (7.7 per cent) due to bronchogenic carcinoma. The same series revealed twelve (23 per cent) due to some intrinsic complication of pneumonia such as: lung abscess, atelectasis, pleural effusion or empyema. Bacteriologic and chemical agents such as Klebsiella pneumoniae, oil aspiration, streptococcus and aspiration of anerobic organisms of the oropharynx, accounted for sixteen (30.7 per cent) of the cases. In two (3.8 per cent), the major etiologic processes could not be determined.

The delay or failure of the usual process of resolution to take place, has been attributed to either defective phagocytic action of the leukocytes or failure of them to liberate an autolytic enzyme.[4,11,17] Influenzal, streptococcal and Friedlanders pneumonia as well as the broncho-pneumonia accompanying measles and pertussis are most likely to result in chronic pulmonary sequelae.[8]

Syphilis has been reported as predisposing to delayed or non-resolution of lobar pneumonia.[3,23,25] In a series of thirty patients with non-resolution, pulmonary abscess and bronchiectasis, twelve (40 per cent) occurred in association with proved pre-existing syphilis.[23] This may be purely coincidental since pulmonary fibrosis due to syphilis is extremely rare.

In our series (Table I) impaired bronchial drainage as a major underlying factor, accounted for eleven (50 per cent). Intrinsic complications accounted for three or approximately 14 per cent, and three or another 14 per cent were of undetermined origin. Five (22.7 per cent) had a history of three or more attacks of "so-called" pneumonia.

From the Department of Pathology, Saint Luke's Hospital, Duluth, Minnesota. Presented at the Minnesota Trudeau Meeting, August 18, 1951, at Nopeming Sanatorium.

TABLE I. MAJOR UNDERLYING FACTORS

Underlying Factors	Number of Cases	Percentage
Impaired Bronchial Drainage		
Bronchiectasis	4	18.2
Chronic bronchitis	2	9.0
Tuberculosis	2	9.0
Bronchial asthma	2	9.0
Bronchogenic carcinoma	1	4.5
Intrinsic Complications		
Empyema	2	9.0
Pulmonary abscess	1	4.5
Undetermined	3	13.5
Previous History of Repeated Pneumonia	5	22.7

TABLE II. SYMPTOMS

Symptoms	Number of Cases	Percentage
Cough	19	86.3
Shortness of breath	14	63.6
Chills	9	40.9
Fever	8	36.3
Chest pain	7	31.8
Weakness	7	31.8
Hemoptysis	6	27.3
Previous pneumonia	5	22.7
Weight loss	4	18.0
No symptoms	2	9.0

Bronchiectasis is likewise often a clinical diagnosis. Although four (18 per cent) of our cases revealed bronchiectasis at necropsy, there is some question as to whether it is an antecedent process or the result of the compensatory emphysema and or pulmonary fibrosis.

Symptoms

Unresolved pneumonia is characterized by its subacute or chronic clinical course.[24] The symptoms usually consist of productive cough, shortness of breath, chills and fever, generalized weakness, chest pain, hemoptysis, weight loss and history of previous episodes of pneumonia.[7,12,14,15,24] In a series of ten cases,[14] a productive cough of mucopurulent sputum occurred in all cases; hemoptysis in eight; chest pain and fever in five cases each. The duration of symptoms varied from six months to twenty-two years, with 70 per cent between two and ten years duration. In another series of ten cases,[24] the duration of cough, fever, expectoration, hemoptysis and chest pain varied from two and one-half months to five years.

In our series (Table II) a productive cough occurred in nineteen (86.3 per cent); shortness of breath in fourteen (63.6 per cent); chills in nine (40.9 per cent); fever in eight (36.3 per cent); chest pain and generalized weakness in seven (31.8 per cent); hemoptysis in six (27.3 per cent) and weight loss in four (18 per cent). In five cases (22.7 per cent) a history of repeated attacks of pneumonia was elicited. In a series of 220 cases of pulmonary fibrosis, 163 (74 per cent) were traced to previous attacks of pneumonia, influenza, measles or pertussis.[8] No definite subjective symptoms could be elicited in two (9 per cent) of our cases.

The duration of symptoms is illustrated in Table III. The symptoms of cough, shortness of breath, chest pain, weakness and hemoptysis were present from one to five years in 95 per cent of the cases.

The symptomatology in general is one of repeated episodes of respiratory tract illness of varying severity.[12] Physical examination usually yields divergent findings and varies with the size and location of the disease process.[15]

Pathology

The basic pathologic changes are the result of the transformation of the intra-alveolar exudate into fibrous connective tissue.[4,17,22] The characteristic indurated leathery lung requires time plus some nidus of infection or irritant and occurs as a natural protective mechanism.[20]

The lung changes depends on the degree of injury to the various structural components. The pneumonias in which the connective tissue framework, bronchial tree, vascular and lymphatic channels are seriously damaged or destroyed, exhibit the highest number of chronic pulmonary sequelae.[8]

The pathologic physiology is primarily the result of interference with bronchial drainage and the resultant secondary changes of obstruction, such as pneumonitis, collapse, bronchiolitis, bronchiectasis, abscess and gangrene.[15] Emphysema, which impairs respiratory function, develops to accommodate for the loss of efficiency of the fibrotic lung.[8] Improper ventilation and drainage plus impaired peristaltic action of the cilia results in the puddling of secretions and inadequate cleansing of the involved bronchopulmonary segment.[5] The metaplastic transformation of the ciliated epithelium may further add to stagnation of secretions. These may be the necessary nidus of infection or irritant to stimulate the natural protective mechanism of reactive fibrosis.

The affected lung is rubbery to leathery in consistency and airless. The pleura may or may not be thickened. As a rule whole lobes or at least large areas are involved but patchy distribution has been reported.[17,21] In a total of thirty cases[14,17,23] the right upper lobe was involved in six (20 per cent)

TABLE III. DURATION OF SYMPTOMS

Symptoms	Range	Under 6 months	Under 1 year	1-5 years	5-10 years	10-15 years	15-20 years	Over 20 years
Cough	3 weeks to 30 years	2	4	5	3	2	0	3
Shortness of breath	6 months to 30 years	0	3	6	2	2	0	1
Chest pain	6 months to 6 years	0	0	4	2	0	0	0
Weakness	3 weeks to 8 years	1	0	4	1	0	0	0
Hemoptysis	2 months to 20 years	1	0	2	0	1	0	1

of cases. The right middle and lower lobes accounted for five each (16.9 per cent). The right upper and middle, right middle and lower and the left lower lobe were involved in three cases each (10.0 per cent). All lobes of the right lung in two cases (6.9 per cent) and one case each (3.3 per cent) involved the left upper, both lower lobes, with the right middle lobe and patchy distribution of the other lobes of the right lung.

In our series (Table IV) involvement of all lobes of the right lung accounted for five (22.7 per cent) of the cases. The right lower, right upper and the middle lobe accounted for three cases each (13.6 per cent). In two cases each (9.0 per cent) the involvement was limited to the right upper, right middle and lower and the left lower lobe. All lobes of the right lung or singular involvement of the lobes occurred in 68 per cent of the cases. The remainder of five cases revealed a variance in their distribution.

TABLE IV. LOCATION OF PATHOLOGY

Location	Number of Cases	Percentage
All lobes, right lung	5	22.7
Right lower lobe	3	13.6
Right upper and middle lobe	3	13.6
Right upper lobe	2	9.0
Right middle and lower lobe	2	9.0
Left lower lobe	2	9.0
Left upper and lower lobe	1	4.5
Lower lobes, diffuse	1	4.5
Lower lobes, patchy	1	4.5
Right middle and lower and left lower lobe	1	4.5
Right lobes and left lower lobe	1	4.5

The histopathology is one of interstitial fibrosis, thickening of the alveolar walls, lymphocytic and neutrophilic infiltration, lymphocytic hyperplasia, atelectasis and vacuolated macrophages in alveolar spaces. The foregoing are basically the result of an obstructive pneumonitis. The intra-alveolar exudate of any pneumonic process with its neutrophils and fibrin may resolve and be absorbed. This same process may progress into suppuration with abscess formation and necrosis. The exudate may undergo fibrinoid changes with ingrowths of fibroblasts and transformation of the fibrinous plugs into fibrillar connective tissue. The basic distinctive histology of the lung is thus replaced by a chronic inflammatory process.[12,22] The reactive fibrosis is usually most marked in and about the bronchial segments and the alveolar walls. This process leads to the distortion of bronchioles and alveoli with areas of obstructive pneumonitis and resultant atelectasis, compensatory emphysema, bronchiectasis and obliterative bronchiolitis. The pooling of secretions result in interstitial suppuration, abscess formation, purulent bronchitis and even necrosis of lung tissue with gangrene as the result of vascular thrombosis.[8]

A review of the histopathology in our series revealed no satisfactory criteria for an adequate classification. The cases of relatively short duration revealed a histologic picture almost identical with those of considerable longer duration and consisted of replacement of lung tissue by a fibroblastic and hyalinization process, obliteration of air spaces, thickening and distortion of bronchioles, abscesses, areas of necrosis and emphysema with lymphocytic and neutrophilic infiltration in bronchioles, alveoli and interstitial tissue. A careful search failed to reveal any evidence of oil aspiration. In general, our post-mortem bacteriology was poor and therefore offered no accurate bacteriologic etiology.

Diagnosis

The usual symptoms of productive cough, shortness of breath, chills and fever, chest pain, generalized weakness and hemoptysis, may be characteristic of a variety of pulmonary disease processes.

The use of modern antibiotics has reduced the mortality in pneumonia with rather resultant dramatic clinical improvement. The pathologic and physiologic changes may not always keep pace with the clinical improvement and thus the masking effect of the antibiotics may give one a false sense of security.[9] A diagnosis of unresolved pneumonia without a thorough search for the underlying factors may result in missing a remediable condition.[1]

In a series of forty patients diagnosed as atypical pneumonia, a pneumonitis around a preexisting bronchiectasis was found in 67.5 per cent of cases.[6]

Any pneumonia which does not improve clinically and radiologically in two to four weeks should have a complete tracheobronchial study with: (1) repeated serial chest x-rays, (2) bronchoscopy, (3) studies for malignant cells and acid-fast organisms and (4) bronchograms.[9,10,15] Bronchoscopy should be done early to avoid irreversible damage.[10,15] In a series of thirty-eight cases, diagnosed as unresolved pneumonia, bronchoscopic examination revealed eight bronchogenic carcinomas, five of bronchiectasis, two each due to foreign bodies and lung abscess, one each of extrabronchial tumor, inflammatory bronchial stenosis and enlarged bronchial glands. The remainder, eighteen children, revealed varying degrees of incomplete bronchial obstruction due to secretions.[15] In a series of fifty-two cases diagnosed clinically as unresolved pneumonia, the diagnosis was proved correct on necropsy examination in only six (11.5 per cent) of cases.[20]

In our series the correct clinical diagnosis was made in only three (13.6 per cent) of the cases. No bronchoscopic examinations had been made.

Treatment

The use of irradiation and/or diathermy has produced relief of symptoms and clearing as indicated by x-ray examination. The series, however, has been too small to draw any definite conclusions.[7,16]

As a result of the advances in anesthesia and thoracic surgery, cures of inflammatory lesions of the lung by surgical extirpation have been reported with increasing frequency during recent years.[24]

Conclusions

1. The use of such a vague term as unresolved pneumonia is in reality a diagnosis of an undiagnosed case. The more specific term of "obstructive pneumonitis" based on the underlying pathology is the one of choice.

2. Out of a total of 2,538 necropsies from 1937 to 1950 inclusive, twenty-two cases were encountered, for an incidence of 0.9 per cent.

3. Impaired bronchial drainage as the major underlying factor accounted for 50 per cent of the cases. Intrinsic complications accounted for 14 per cent and in another 14 per cent no definite factor could be determined.

4. A history of repeated attacks of so-called pneumonia was elicited in 22.7 per cent of cases.

5. The symptoms of a productive cough occurred in 86.3 per cent; shortness of breath in 63.6 per cent; chills in 40.9 per cent; fever in 36.3 per cent; chest pain and weakness in 31.8 per cent each and hemoptysis in 27.3 per cent. The symptoms of cough, shortness of breath, chest pain, weakness and hemoptysis were present from one to five years in 95 per cent of the cases.

6. Involvement of all the lobes of the right lung, singular involvement or combinations involving the right lung occurred in 75.6 per cent of cases.

7. The correct clinical diagnosis was made in only 13.6 per cent of cases.

8. A thorough and complete tracheobronchial study is imperative if an early diagnosis of this frequently remediable condition is to be made.

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A BOTANICAL CONSIDERATION OF THE WEED OLEORESIN PROBLEM

S. MACKOFF, M.D., and A. O. DAHL, Ph.D.
Minneapolis, Minnesota

THE problem of weed dermatitis in the State of Minnesota is by no means new. As early as 1894 MacDougal[6] published a case of dermatitis due to the showy lady's-slipper *(Cypripedium reginae, C. spectabile)* and the moccasin flower *(C. calceolus* var. *pubescens)*. He noted in addition that there were a number of native Minnesota plants which had been definitely ascertained to be more or less "poisonous" by means of skin contact. Among these he listed the following:

Cocklebur *(Xanthium canadense)*
Smartweed *(Polygonum hydropiper)*
Wood Nettle *(Laportea canadensis)*
Beggar's-Ticks *(Bidens frondosa)*
Skunk Cabbage *(Symplocarpus foetidus)*

It is interesting to note some of the author's further observations in the light of information since uncovered: "No doubt the larger percentage of the common plants known to be poisonous is due to the fact that they offer much more opportunity for observation than do the rarer forms. . . . It is by no means to be understood that there are many plants which are always and invariably poisonous, for many of the plants in this category are injurious to only a very small percentage of the persons touching them, so that their irritating qualities might remain undiscovered altogether unless tested by a large number." MacDougal reasoned that these noxious plants poisoned one by piercing glandular hairs or by means of volatile agents (e.g., toxicondendric acid of Rhus).

These early acute observations, together with those of Blackley, Walker, Hannah[5] and others have since been much extended and clarified by: (1) the immunologic concepts of Bloch and Jadassohn, (2) the chemical and immuno-biologic studies of Coca, Brown, Milford[1] and others, (3) the clinical studies of Shelmire,[8] Brunsting,[2] Sulzberger,[9] Anderson[2] and others; so that as a consequence of this substrate of information, it is pretty well established that in a gross qualitative manner, at least, plants and their pollens may be separated into two fractions of clinical importance:

1. The water-soluble protein fraction relating to atopic manifestation such as hayfever, asthma, et cetera.
2. The organic solvent fraction relating to contact dermatitis.

During the past several years we have had the opportunity of studying* twenty-five cases of eczema in which positive patch tests were obtained to the oleoresinous fractions of a number of weeds. In all of these cases there was present reasonable evidence that the positive skin test reactions were related to the patients' clinical condition.

Having obtained such information, one is confronted immediately with several problems: which weeds most frequently cause dermatitis, and which weeds giving positive skin reaction are present in a given patient's locality? Furthermore, inasmuch as positive patch test reactions in a given individual often occur within a group of weeds closely related to one another botanically, the question of their allergenic interrelationships appears. It would be extremely helpful, for example, to know the major and minor allergenic relationships of these weeds because such information could be employed in determining the constituency, proportion-wise, of the various weed oleoresins, which would be included in hyposensitization material to be administered to a given patient.

In regard to the geographic distribution of weeds of "allergic" importance in the state of Minnesota we have had the good fortune of having at our disposal previous studies of Ellis and Rosendahl[3] and of Rosendahl, Ellis and Dahl.[7] Having determined the weeds which appeared "significant" on the basis of our cases, such weeds were then plotted in terms of their geographical location in the state of Minnesota, as determined by the previously noted studies, in Figures 1 and 2. The utility of such data is quite evident. We are indebted to Dr. J. W. Moore for the collection sites of various species.

It is with considerable temerity that one approaches the question of the allergenic relationship of the various weeds. True, the chemistry of some plant material has been studied in considerable detail, e.g., rhus, primula, et cetera. But to our knowledge information is rather sparse regarding the composition of the materials under consideration here either in a chemical or an immuno-biological sense.

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*Rhus oleoresins were omitted in this study.

From the Division of Dermatology, University of Minnesota, Director, H. E. Michelson, M.D.; the Department of Botany, University of Minnesota, Chairman, A. O. Dahl, Ph.D.; and the Veterans Administration Outpatient Clinic, Ft. Snelling, Minnesota, Chief Medical Officer, Richard B. Hullsiek, M.D.

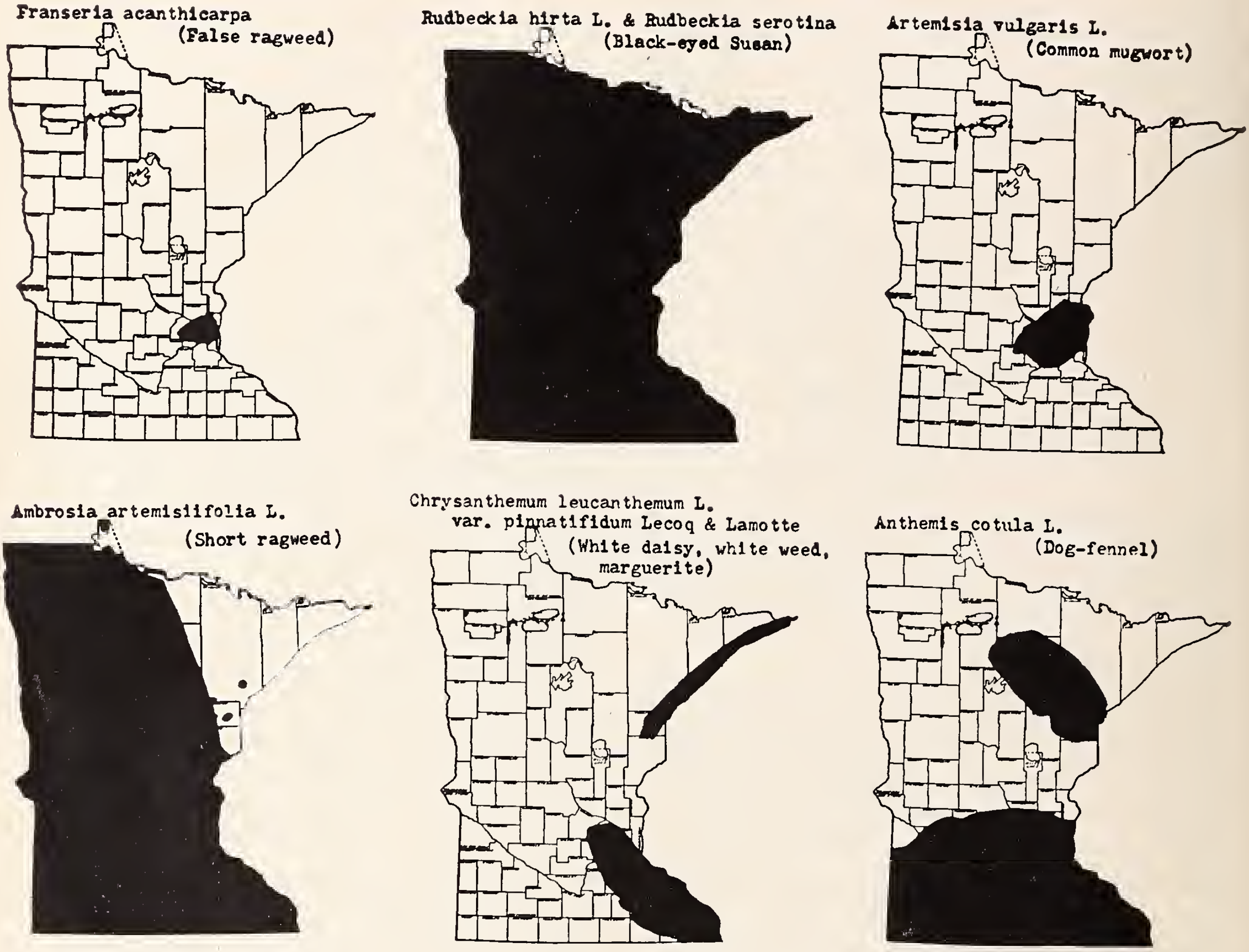
Franseria acanthicarpa
(False ragweed)
Rudbeckia hirta L. & Rudbeckia serotina
(Black-eyed Susan)
Artemisia vulgaris L.
(Common mugwort)
Ambrosia artemisiifolia L.
(Short ragweed)
Chrysanthemum leucanthemum L.
var. pinnatifidum Lecoq & Lamotte
(White daisy, white weed, marguerite)
Anthemis cotula L.
(Dog-fennel)

Fig. 1.

The original confusion as to whether it was the pollen or other plant parts that were capable of producing the dermatitis has now been settled in favor of both. Simpson's early impression[10] that the weed dermatitis active principle was extractable in a number of organic solvents has since received support from Coca, Milford and Brown. These later investigators, by means of simple lucid experiments, demonstrated the gross chemical and immuno-biological differentiation between the water-soluble protein fraction capable of producing hay fever and asthma and the oleoresin, non-volatile organic extract fraction capable of producing dermatitis of the contact allergic type. Despite the previously noted information differentiating the water-soluble protein fraction from the oleoresinous fraction of weeds, both on a chemical and a biological (immunological) basis, it is a fairly common practice to attempt to transfer the concept of major and minor allergens as elucidated with respect to atopic states (hay fever, asthma), to the contact allergic state induced by oleoresins as well. For example, short ragweed water-soluble protein fraction, for all practical purposes, protects anaphylactically against burweed-marsh-elder, ragweed, cocklebur, et cetera. Therefore, it has been reasoned erroneously that a parallel situation exists with respect to the dermatitis producing oleoresin fraction of these same weeds. However, such a conclusion is not justified. We do not mean to deny the possibility that the concept of major and minor allergen may not pertain to oleoresinous extracts, but this is as yet unproven. As a starting point in the general study of this problem, we decided to subject our data, and that of others, to a botanical analysis to determine what possible inter-relationships and trends might be determined by this device. Our data include only those patients which showed positive patch test reactions to one or more weeds. The patients were tested with twenty-four commercial oleoresin weed extracts* in acetone. The material was applied to the upper back or abdomen in the usual manner. The positive cutaneous test reactions so obtained were plotted into a table arranged according to botanical relationships[4] (Table I). Technical names follow the treatment presented in Gray's *Manual*.[4]

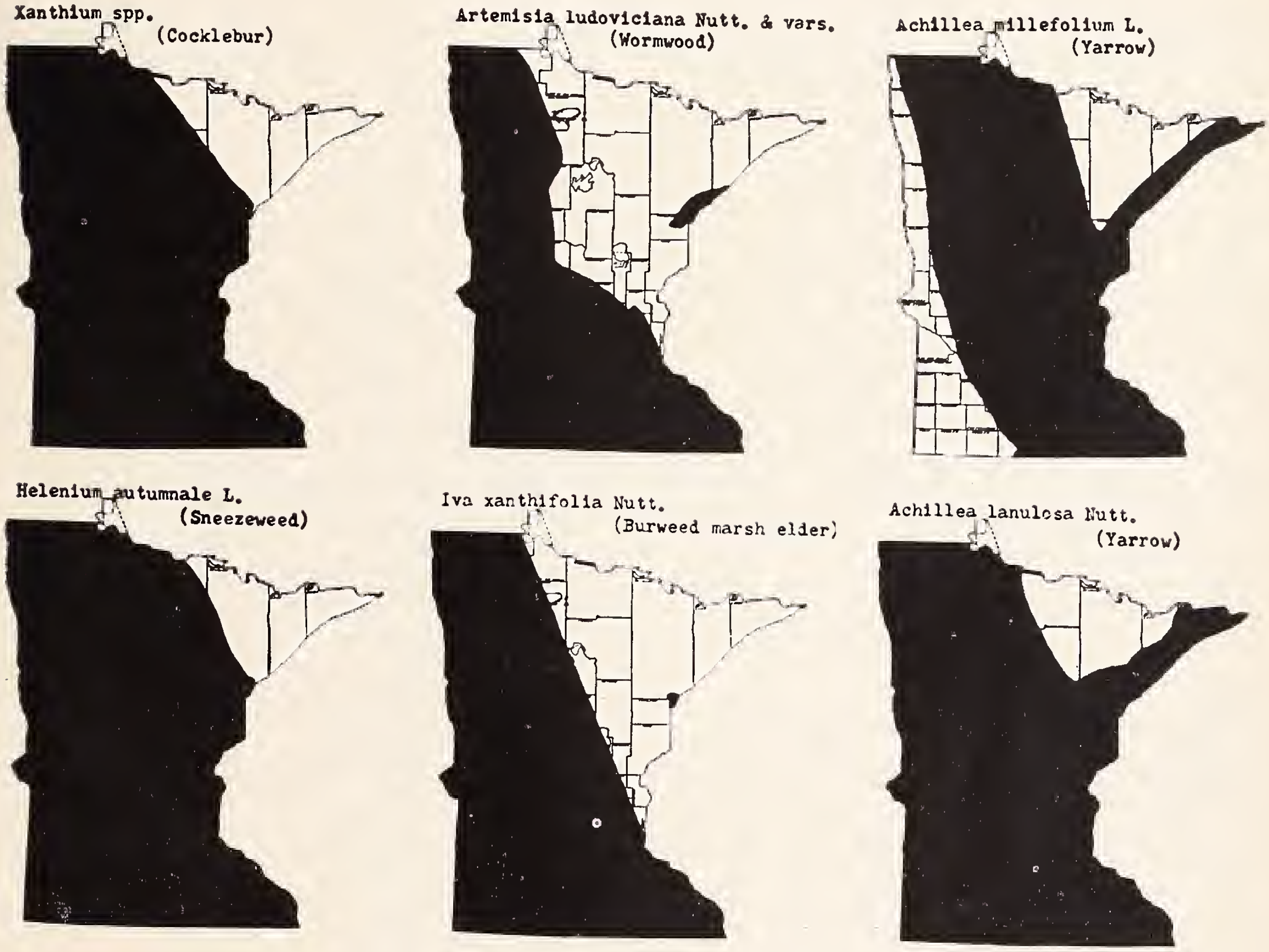

Fig. 2.

These statistics corroborate our earlier clinical impression that the Family *Compositae* is an outstanding etiological agent in the production of weed contact eczemas. Further analysis reveals that certain tribes within the Family *Compositae*, insofar as tested, are more likely complexes of offending species, as illustrated in Figure 3.

Within the very real limits of the small population examined, it would appear from Figure 3 that certain tribes within the *Compositae*, e.g., sunflower *(Helianthiae)*, dog fennel *(Anthemideae) and sneezeweed (Helenieae)* are the important sources of the sensitizing components.

It becomes apparent that just as there are differences in sensitizing potencies between tribes, so there are differences in sensitizing potencies within a given tribe (Fig. 4).

Considering the above data, it appears possible that short ragweed contains the major antigenic agent and shares major antigenic components with false ragweed, burweed-marsh elder and cocklebur. The antigenic relationship of these weeds to black-eyed Susan and sunflower, if there be any at all, must be a remote one. It is of some interest to note that also from a botanical point of view black-eyed Susan and sunflower are differentiated

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*Graham Laboratories, Dallas, Texas.

TABLE I—Botanical Analysis

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
Burweed Marsh Elder	+	+		+	+			+	+		+	+	+	+		+	+					+	+		+	*Sunflower Tribe*
Short Ragweed	+	+	+	+	+	+		+		+	+	+	+		+	+	+	+	+	+	+	+	+	+	+	
False Ragweed				?	+		+	+		+	+	+	+	+	+	+	+					+	+	+	+	
Cocklebur	+	+	+	+		+				+	+		+			+		+	+		+	+			+	
Black Eyed Susan																							+			
Sunflower																				+						
Sneezeweed		+		+		+		+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	*Sneezeweed Tribe*
Yarrow													+		+		+			+						*Dog Fennel Tribe*
Dog Fennel				?			+							+	+					+	+					
Wild Feverfew	+		+	+	+		+	+	+		+	+	+	+		+	+					+		+	+	
Common Wormwood	+	+		+			+	+	+		+	+	+	+		+	+	+		+		+	+		+	
Smaller Burdock																					+					*Thistle Tribe*
American Thistle				+								+														
Dandelion															+		+									*Chicory Tribe*
Red Root Pigweed																	+									
Lamb's Quarters																										
Russian Thistle																										
Western Water Hemp																										
St. John's Wort															+			+								
Evening Primrose									+																	
Common Milkweed					?		+							+				+			+					
Horse Nettle					?																					
Golden Rod																										
Aster (MANY-FLOWERED)																										

from the four species just mentioned. For example, both black-eyed Susan *(Rudbeckia)* and sunflower *(Helianthus)* are insect-pollinated whereas the other species are solely wind-pollinated.

In Figure 5 we again note the disparity in reaction incidence within a botanical tribe. It would seem likely that common wormwood and wild feverfew are, on the basis of biological evidence (patch tests), probably linked closely together antigenically, with the relationship to dog fennel and yarrow at best held by an antigen of a minor character.

Our number of cases is small and subject to criticism on that account. However, it is of interest and obviously supports our findings that Shelmire's study on weed dermatitis produces a profile very similar to our own (Fig. 6).

We have admittedly indulged in speculation beyond the bounds afforded by our information regarding what might represent major and minor allergenic relationships between and within the particular botanical groups discussed. Yet this was done with the intention of setting up hypotheses against which laboratory and clinical experiments may be pitted in the near future.

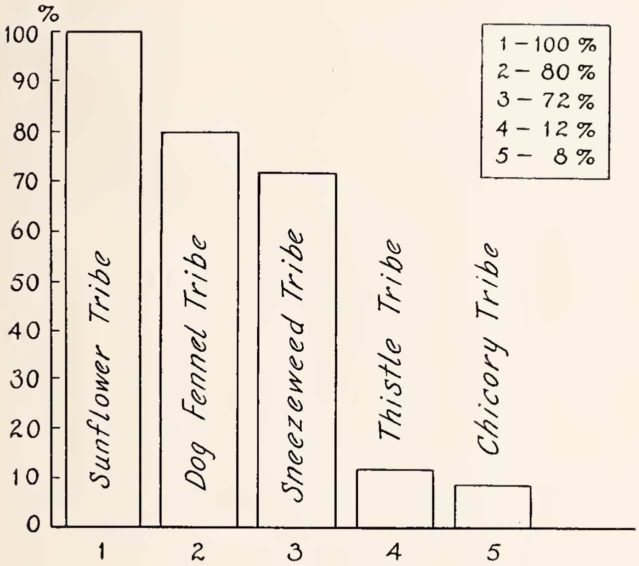

Fig. 3. Reactions within the Family *Compositae* (per cent).

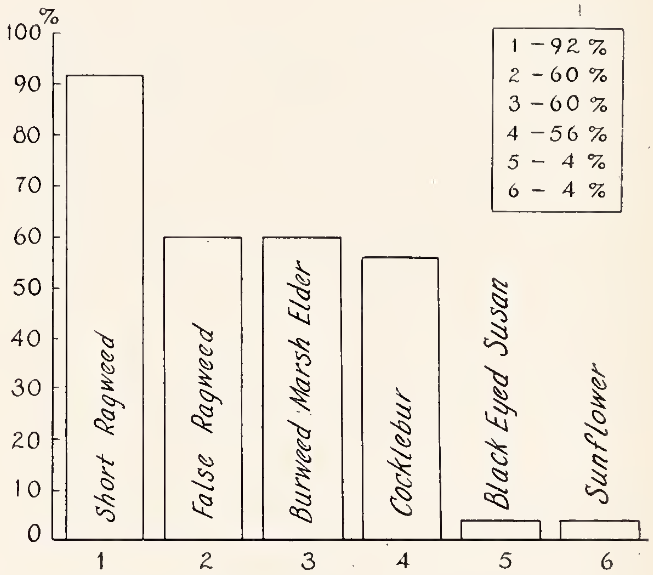

Fig. 4. Reactions within the sunflower tribe *(Heliantheae)* (per cent).

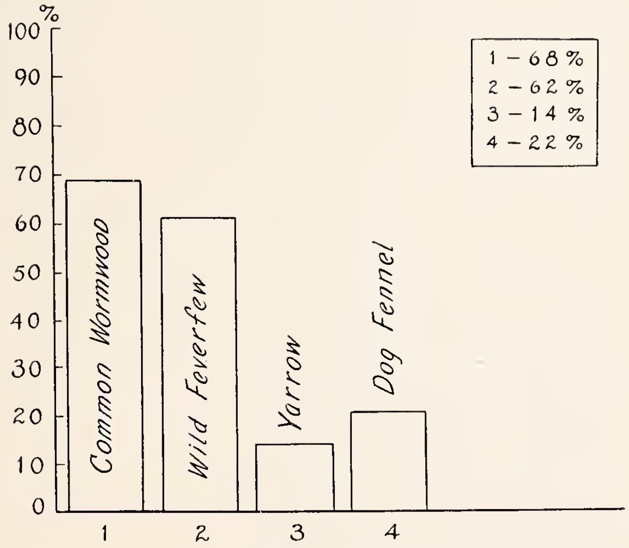

Fig. 5. Reactions within the dog fennel tribe *(Anthemideae)* (per cent).

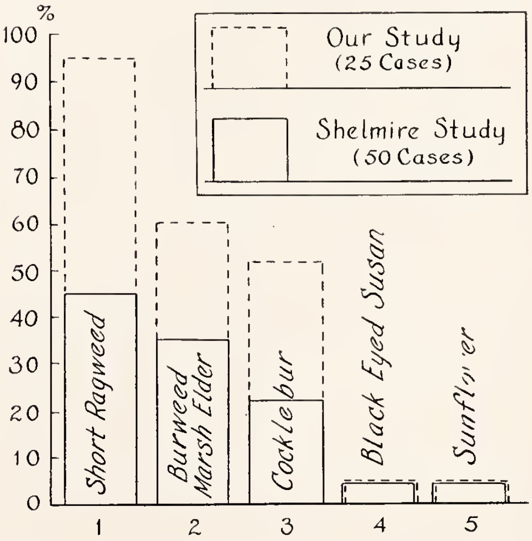

Fig. 6. Comparative studies: sunflower tribe *(Heliantheae)* (per cent).

Summary

1. The geographic distribution of weeds of dermatitic significance in the State of Minnesota has been illustrated graphically.

2. Analysis reveals that the large botanical Family *Compositae* contains the majority of offending weeds of those tested.

(Continued on Page 1188)

REPAIR OF VENTRAL HERNIA WITH KNITTED WIRE MESH

C. T. EGINTON, M.D., and J. A. HENDERSON, M.D.
Saint Paul, Minnesota

THE use of metallic substances in the repair and reconstruction of various tissues has engaged the attention of surgeons for a great many years. The ancient Greeks used gold wire ligatures. The earliest efforts at tissue reconstruction with metal were made during the present era by dental surgeons and orthopedists, but in 1894 Phelps[15] described a method of placing silver wire loops between abdominal layers to cover large inguinal defects.

During the past decade surgeons have intensified their search for the perfect material to use in those frequently encountered cases where there are not sufficiently strong anatomical structures present for the successful repair of large ventral defects. The early disappointing results of the use of most metallic substances have been due to the electro-chemical phenomenon known as corrosion or oxidation of the buried metal. In the past few years with the development of fairly non-irritating and relatively inert alloys, this has been minimized. These metals resist corrosion by the formation of a thin film of an insoluble compound, usually an oxide, on their surfaces, preventing metal ions from migrating from these surfaces and also preventing the transfer of electrons from the metal to the oxidizing substances in the living tissues in which the metal is embedded.

Several metals, such as vitallium, tantalum and stainless steel, have this corrosion-resisting property and have been used surgically in various capacities with success. Vitallium, an alloy of cobalt, chromium, and molybdenum, which has been widely used in orthopedic surgery, has the disadvantage of being brittle, impossible to machine or draw into wire. Tantalum, the seventy-third element in the Periodic Table, was introduced to surgery by Burke in 1940.[3] It is highly resistant to oxidation in the tissues, has a tensile strength 50 to 80 per cent that of stainless steel, and can be stamped, machined, and drawn into wire. However, due to its low resistance to heat, it is difficult and costly to process. Stainless steel (18-8 alloy) is only slightly less resistant to corrosion; it is ductile, tough, and is generally available, costing only about one-sixteenth as much as tantalum. The alloy consists of 18 to 20 per cent of chromium, 8 to 10 per cent of nickel, 60 to 70 per cent of iron, with small amounts of carbon, manganese, silicon, and sulfur. It is a relatively poor conductor of heat, and in the soft annealed form used surgically it has a very high tensile strength and is somewhat more pliable than tantalum. In passivating, a thin protective film of chromium oxide forms upon the surface.

There have been a large number of reports of successful repair of ventral abdominal hernias with the use of tantalum gauze, made up of tantalum wire 0.003 inches in diameter, woven into a 50 mesh screen cloth, i.e., 50 wires criss-crossing to each square inch.[4,7,9,11,12,14,17,18] Numerous experimental studies as well as clinical observations have established that fibrous tissue grows through and around this mesh, forming, in a few months, a very strong plate of wire-reinforced scar tissue to cover the defect in the abdominal wall.[5,6,7,9,10] Babcock has buried wire screen made of very fine stainless steel between layers over weak areas of the abdominal wall for reinforcement and has found by his experiments on dogs that it is non-irritating and that in two weeks the wire is covered by granulation tissue grown through the interstices of the mesh. McNealy and Glassman, in May, 1950, devised a rigid vitallium prosthesis to be fitted into hernial defects much as a boot or shoe fits over a defect in an automobile tire.[13] The occasional use of non-metallic foreign materials such as nylon net[2] and preserved ox fascia[8] to bridge large defects in the abdominal wall has not been uniformly successful.

Hernias of the abdominal wall usually arise from a deficiency, either congenital or acquired from operation or other trauma, in the supporting structures, namely, the musculature or endoabdominal fascia, through which defect the peritoneum bulges as a hernial sac. Small and moderately large defects can be repaired successfully by various techniques using silk, wire, strips of fascia lata, pedicle flaps of fascia and muscle, split thickness skin grafts, et cetera, but the surgeon is frequently confronted with huge defects in the abdominal wall where his ingenuity is taxed by several problems. The size of the defect to be bridged may be such that it necessitates the use of an extremely large amount of strong material. This is seldom available from the adjacent tissues since these are usually deficient or weakened by fat infiltration. There are some objections to the use of fascia: strips may be inadequate, and massive fascial transplants have poor lateral strength; moreover, obtaining a massive fascial sheet is not a simple operation and certainly adds to the operative morbidity. It is in these cases that a prosthesis of some sort is desirable. It should be strong, pliable, non-irritating in the tissues, workable, inexpensive, and easily available to the general surgeon in private practice.

The tantalum mesh previously described fulfills some of these desiderata. However, one serious disadvantage is apparent. Due to the inelasticity of this material, the outward force to which it is subjected from an increase in intra-abdominal pressure is transmitted in its entirety to the peripheral sutures anchoring the prosthesis to the surrounding tissues. This is of consequence especially during the early postoperative period when the tensile strength of the tissues is low. It has been frequently noted[14] that the gauze becomes more or less brittle and considerable fragmentation occurs, but this apparently does not affect the strength of the repair and the surrounding scar tissue seems to be dense enough to prevent migration of the free wires. The current cost of the tantalum mesh is about $25 for a 6 by 12-inch sheet.

Rudie[16] recently developed a crocheted tantalum fine wire mesh. This material, we believe, has more of the qualities of the perfect metallic substitute for an abdominal wall than any we have used heretofore. It has considerable elasticity and sufficient strength, yet has a comparatively small amount of metal to the square inch. The elasticity is such that during the early healing period outward force applied to it is largely dissipated before it reaches the peripheral holding sutures. After organization of the scar tissue infiltrating the interstices of the mesh, of course, the elasticity disappears.

Dr. Rudie kindly furnished us with several sheets of this material for our use in our early cases at Ancker Hospital, Saint Paul. Lately we have been using .005-inch (B&S gauge 36) stainless steel wire knitted with No. 3 knitting needles; this has the additional advantages of relative cheapness and easy availability to the surgeon in private practice.

The surgical technique in the use of the knitted wire mesh is very simple. After wide dissection and reduction of the hernia, the peritoneum is closed, by imbrication if it is redundant; the knitted wire sheet is then placed external to the peritoneum and sutured with interrupted fine wire sutures of the same material as that knitted, to the strong fascial tissues or bone, peripherally, the sutures being placed about ⅜-inch apart. The weaker fascial structures (there is rarely much muscle), which were overlying and immediately adjacent to the hernia, are laid over the mesh and sutured in place, covering the metal as completely as possible without tension. We have employed the use of small penrose drains, removing them after forty-eight hours, for with these extensive dissections uncovering wide areas hemostasis is rarely complete and considerable transudation occurs.

We have repaired nine very large ventral hernias with knitted wire mesh. Six of these were at Ancker Hospital, and three in private hospitals. This method of repair was reserved for those cases which we felt did not have sufficient tissue available for repair by any other means. This is apparent by the fact that during this period there were fifty-five postoperative ventral hernias repaired at Ancker Hospital by a variety of techniques. Suture materials used in these cases included silk, catgut, cotton, and fascia lata in strips and patches. There were four recurrences in this group, all occurring within six months of the repair.

In the nine repairs with knitted metallic wire, tantalum was used in three and stainless steel in the last six. Ages of the patients varied from thirty-five to seventy-six; five of them were over seventy years of age. In each of five patients one previous unsuccessful attempt at repair had been made; in one case, two attempts, in two cases, three attempts, and in one case, four attempts had been made before the final repair with metallic gauze. The primary operation in four cases had been cholecystectomy and choledochostomy; in two, gastric resection; in one, pelvic laparotomy; in one, combined abdomino-perineal resection of the rectum; and in one, nephrectomy.

To this date there have been no recurrences of hernia in these nine patients. Three of them were repaired more than two years ago; two between one and two years ago; two between six months and one year ago; and two less than six months ago. In two patients we have noted a raised firm plaque exactly the size of the mesh used. There is no evidence of inflammation and no discomfort associated with this. In the other cases this plaque of reinforced scar is palpable but not visible.

Summary

Nine patients with extremely large recurrent postoperative ventral hernias have been repaired with knitted tantalum or stainless steel wire mesh laid in as a substitute for the attenuated muscle and fascia of the abdominal wall. The peculiar advantages of knitted wire mesh have been emphasized.

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CONGENITAL OBSTRUCTION OF THE ALIMENTARY CANAL IN THE NEWBORN

(Continued from page 1159)

Summary

Four proven cases of congenital obstruction of the alimentary canal in newborn infants have been reported, with one non-operative death. There were three cases of complete atresia, two of the esophagus and one of the duodenum, which occurred among 4,374 live-births in our hospital during the five-year period ending December 31, 1950.

The authors wish to emphasize the fact that congenital obstructions of the alimentary canal are more common than is generally recognized. Such obstructions are easily overlooked. Esophageal obstructions are frequently misdiagnosed "atelectasis" or "bronchopneumonia" because of the respiratory complications resulting from them. The symptoms of intestinal obstruction are frequently attributed to cerebral birth trauma or feeding problems until too late.

Every physician who is responsible for the care of newborn infants should be keenly interested in the problem of congenital obstruction of the alimentary canal. Excellent surgical results may be obtained when the diagnosis is established early, preferably within the first 48 to 72 hours of life.

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VENTRICULAR ANEURYSM

A Case of More than Twelve Years' Duration

HUGH H. HANSON, M.D., and HARRY L. SMITH, M.D.
Rochester, Minnesota

VENTRICULAR aneurysm, with few exceptions, was an unexpected finding at necropsy prior to the past two decades. During this period the time of diagnosis has changed from that of necropsy to clinical examination and today ante-mortem diagnosis is not an infrequent occurrence. A concomitant change has occurred in the literature on this subject.[1,3,7] The increased incidence of ante-mortem diagnosis of ventricular aneurysm has resulted from an increased index of suspicion by clinicians, and from increased use of electrocardiography and roentgenography. Although the presence of a ventricular aneurysm may be suspected during life from the history, physical examination and electrocardiogram, confirmation is dependent on roentgenography or exploratory thoracotomy.

The following report of a case is made because of the size of the aneurysm, its duration and the problem of its differential diagnosis.

Report of a Case

A white man, fifty-five years of age, came to the Mayo Clinic on April 3, 1951. He had had the usual childhood diseases. At twenty years of age he had experienced an episode of migratory polyarthritis and had remained in bed for six weeks. Subsequently he had recovered completely. In 1917, while in the United States Army, he had pneumonia with pleurisy, and ever since he had experienced cough, wheezing and expectoration of mucopurulent sputum with respiratory infections. In the fall of 1937 shortness of breath on exertion, weakness and pain in the thorax developed. The pain was located over the precordium, on the left side of the thorax and extended to the left shoulder; it was precipitated by exercise, lasted five to ten minutes and subsided quickly with rest. These symptoms produced incapacitation, and in January, 1938, he was hospitalized for six weeks. Quinidine was administered which converted an auricular fibrillation to sinus rhythm. Roentgenologic examination revealed enlargement of the heart in all diameters, left ventricular hypertrophy and calcium in the pericardium. Although a ventricular aneurysm was suspected at this time, its presence could not be established, and the radiologist felt that the possibility of an aneurysm of the left ventricle could not be definitely excluded. A diagnosis was made of chronic asthmatic bronchitis, old coronary occlusion, myocardial fibrosis, slight cardiac insufficiency, auricular fibrillation and calcified pericardium, as evidenced by the roentgenogram.

In March, 1939, the patient was readmitted to the Hines Veterans Hospital with the same findings; however, roentgenologic examination at this time revealed definite evidence of an aneurysm of the left ventricle (Fig. 1*a*). In December, 1940, he was readmitted a second time because of marked dyspnea, weakness and edema of the ankles. After three months of treatment the congestive heart failure improved; however, auricular fibrillation persisted. He was dismissed on a regimen of no extra salt diet and doses of digitalis. Subsequently, he changed his occupation from that of farming to clerking in a shoe store; he did not experience significant symptoms again until February, 1951. At this time he noted a return of dyspnea on exertion, weakness and edema of the ankles. These symptoms persisted, and in March effusion of the left pleura developed with marked dyspnea which caused him to stop work. A cardiac regimen and administrations of mercurial diuretics caused his symptoms to diminish; however, edema of the ankles persisted and his failure to get rid of this condition precipitated his visit to the clinic.

Physical Examination.—On examination it was noted that dyspnea was present when the patient was at rest. The pulse rate was 66 beats per minute and totally irregular. The blood pressure was 132 mm. of mercury systolic and 70 mm. diastolic. The patient weighed 165 pounds (74.8 kg.) and his height was 5 feet, 8 inches (172.72 cm.). The head was normal. Funduscopic examination revealed normal disks and vessels. Moist crepitant and subcrepitant rales were present throughout both lungs. The apical impulse was quite forceful and bifid in character; it was located just lateral to the anterior axillary line in the sixth intercostal space. The heart sounds were faint at the apex and absent over the base; murmurs were not present. The edge of the liver was palpable five fingerbreadths below the costal margin. Pitting edema, grade 2, of the ankles and legs was present. All arteries pulsated normally.

Results of Laboratory Tests.—The urine was alkaline and the specific gravity was 1.025; albuminuria, grade 1, was present; there was no trace of sugar, but there were 5 red blood cells per high power field. Results of the Kline test were negative; the hemoglobin content measured 12.7 gm. per 100 cc. of blood; the leukocytes numbered 9,600 per cubic millimeter, and the urea equaled 40 mg. per 100 cc. of blood. Chlorides measured 93 mEq. per liter and carbon dioxide, 25 mEq. per liter of blood. The venous pres-

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Dr. Hanson is a Fellow in Medicine, Mayo Foundation, University of Minnesota, and Dr. Smith is with the Division of Medicine, Mayo Clinic, Rochester, Minnesota.

sure was 19.5 cm. of water (normal, 5 to 15 cm.), and the circulation time (ether) was 15.6 seconds. An electrocardiogram showed the following: auricular fibrillation with ventricular impulses occurring at the rate of 53 per minute with premature ventricular contractions; low amplitude QRS complex in Leads I, II and III; notched QRS complex in Leads II and III; inverted T waves in Leads I and II; iso-electric T waves in Lead III; diphasic T waves in Lead V_1; inverted T waves in Leads V_2, V_3, V_4, V_5 and V_6; depressed RS-T segment and a small Q wave in Leads V_4, V_5 and V_6. Roentgenograms of the thoracic vertebrae did not indicate any abnormality, but those of the thorax revealed evidence of thickened pleura at the base of the right lung and of the lateral wall of the thorax with calcified plaques laterally and anteriorly, fibrosis in the midportion of the right lung, and cardiac enlargement with a prominent left ventricle. Roentgenoscopically the abnormal rounded shadow involving the left contour of the heart near the apex was definitely related to the myocardial structure and exhibited a high degree of amplitude of pulsation. The lateral view showed evidence of a definite margin which appeared to be calcified. Expansile pulsations were evident as were all of the roentgenographic characteristics of a cardiac aneurysm. The previous findings of cardiac aneurysm, calcified pleura and calcified pericardium were confirmed.

While in the hospital the patient was placed on a regimen including a diet containing 0.5 gm. of sodium, rest in bed, and administrations of potassium nitrate, digitoxin (purodigin) and mercaptomerin (thiomerin). During the first four days of hospitalization he lost 7.5 pounds (3.4 kg.), became free of edema and the dyspnea improved markedly. A similar regimen was recommended to be carried out at home.

A diagnosis was made of coronary arteriosclerotic heart disease manifested by cardiac enlargement, ventricular aneurysm, chronic pericarditis (calcified), myocardial infarction (old), auricular fibrillation and congestive heart failure and of chronic bronchitis.

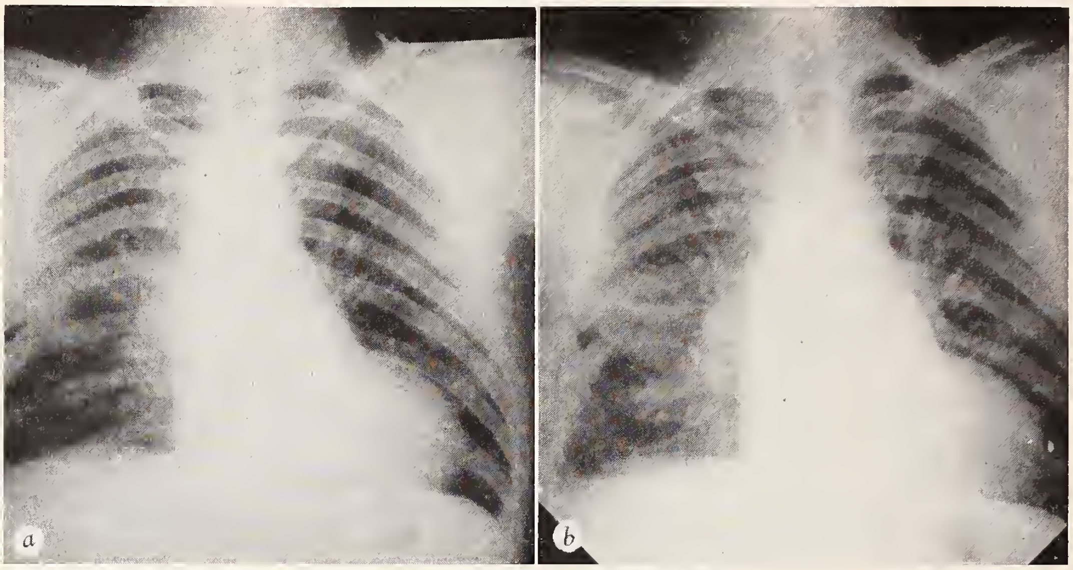

Fig. 1 (*a*) Roentgenographic evidence of a large aneurysm of the left ventricle (March, 1939; courtesy of Hines Veterans Hospital). *(b)* The same aneurysm in April, 1951, showing relatively little change in the size and configuration of the aneurysm although twelve years have elapsed since the first roentgenogram was taken. A metallic body (opposite the aneurysm) was placed on the chest wall prior to taking the roentgenogram to mark the point of maximal apical pulsation as determined by palpation.

Comment

Cardiac aneurysms occur most frequently on the anterior apical aspect of the left ventricle; that is, that portion of the myocardium supplied by the anterior descending branch of the left coronary artery. They may occur, however, on any aspect of the heart. They are usually single but may be multiple, and range in size from a tiny bulge to involvement of the entire left ventricular wall. Rowland[9] found coronary atherosclerotic heart disease, with or without hypertension, and subsequent myocardial infarction to be the etiologic agents responsible for 85 per cent of the ventricular aneurysms. These aneurysms are commoner among males than females and occur during the so-called coronary decades. Rheumatic necrosis, mycotic erosions and abscesses, syphilitic gummas, trauma and congenital defects of the myocardium have all been responsible for the formation of ventricular aneurysms. Some authors have found the incidence of ventricular aneurysm after myocardial infarction to be approximately 10 per cent,[5,6,12] and the aneurysm may develop within one week or within months after the acute episodes.[11]

Myocardial infarction is followed by extensive necrosis of the myocardium and subsequent fibrosis with scar formation. If the patient survives, the high intraventricular pressure causes a bulging of the weakened ventricular wall during systole, and an aneurysm forms. Aneurysms develop most frequently in cases of large transmural infarcts. Advanced pericarditis usually ensues over the aneurysm.

The symptoms associated with ventricular aneurysm are those of coronary heart disease as a rule. When present, the most important physical finding is that of a separate precordial pulsation medial and superior to that of the apical impulse[2] Abnormal cardiac dullness may be present and also other signs of severe myocardial disease, such as diffuse apical impulse, poor or distant heart sounds, gallop rhythm and cardiac murmurs. In the electrocardiogram persistent elevation of the RS-T segment in the precordial leads has been associated with ventricular aneurysm,[8] and Ford and Levine[6] found this to be the most reliable electrocardiographic clue to their presence. The characteristic roentgenographic appearance of a ventricular aneurysm is that of a localized bulge in the contour of the left ventricle. Subsequent roentgenoscopic examination is usually sufficient to establish the diagnosis. Helpful criteria are myocardial angulations, incisura and abnormal pulsations, evidence of a thrombus, and pericardial adhesions.[10] Paradoxical pulsation, when present, is practically pathognomonic of ventricular aneurysm. Roentgenkymography and angiocardiography may be helpful in establishing the diagnosis. Massive ventricular aneurysms may be misinterpreted as left ventricular enlargement, and small ones may be overlooked or obscured by the presence of pulmonary congestion.

The differential diagnosis of ventricular aneurysm includes primary and metastatic tumors of the heart, lungs, pericardium and mediastinum; neurofibromas; dermoids and teratomas; aneurysms of the pulmonary artery, aorta and sinus of Valsalva; and pericardial diverticular, loculated effusions and cysts.

The prognosis in cases of ventricular aneurysm is dependent on the degree of coronary atherosclerosis present and the condition of the underlying myocardium. Death usually results from subsequent myocardial infarction, congestive heart failure, ventricular fibrillation or embolism, since rupture of an aneurysm is rare.[4]

The diagnosis of ventricular aneurysm is actually based on roentgenologic findings. This is supported further by the fact that it may be exceedingly difficult, at times, to recognize the presence of a ventricular aneurysm in specimens removed at necropsy. Perhaps we must realize that a physiologic as well as an anatomic component exists in ventricular aneurysms. Since hypertension is so frequently associated with myocardial infarction, it is an engima that the increased intraventricular pressure does not result in the formation of aneurysms more frequently. The effects of early ambulation and anticoagulation in the treatment of acute myocardial infarction and the presence of ventricular hypertrophy on formation of an aneurysm cannot be definitely evaluated at present, nor can the presence of pericarditis or an organized mural thrombus be exactly evaluated in terms of preventing rupture of the aneurysm.

Prognosis and therapy in cases of ventricular aneurysm are mandated by the severity of the patient's underlying cardiac disease and are relatively unaltered by the presence of the aneurysm; hence its diagnosis becomes largely one of academic interest. Ventricular aneurysm is actually just another manifestation of coronary heart disease.

In the case of ventricular aneurysm reported herein atypical angina pectoris (atypical location of distress but the usual exertion-rest relationship) developed in 1937. A definite history of myocardial infarction was not present; however, cardiac insufficiency forced the patient to be hospitalized in 1938. A diagnosis of coronary heart disease and myocardial fibrosis was established, but the presence of a ventricular aneurysm could not be definitely established at that time although it was strongly suspected. When the patient was readmitted to the hospital in 1939 roentgenologic examination revealed evidence of a definite aneurysm of the left ventricle. In 1941 congestive heart failure developed; however, he regained compensation and managed to lead a productive relatively unrestricted life until 1951 when decompensation again occurred. A roentgenogram of the patient's thorax taken in 1939 (Fig. 1*a*) appeared similar to one taken in 1951 (Fig. 1*b*). The large ventircular aneurysm persisted relatively unchanged in size or configuration for more than twelve years and the patient enjoyed ten years of productive, relatively asymptomatic existence during this period. His symptoms were those of coronary heart disease with congestive heart failure. Roentgenologically, the aneurysm was so large that it could have easily been misinterpreted as a left ventricular enlargement. Dermoids, teratomata and neurofibromata were excluded by roentgenograms of lateral and oblique views of the thorax and the possibility of a tumor of the myocardium or pericardium was excluded because of the duration of the enlargement and its failure to increase in size. The diagnosis was suspected at physical examination and established by cardiac roentgenoscopy. The electrocardiogram of this patient revealed evidence of severe myocardial disease and pericarditis.

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VARIETY CLUB HEART HOSPITAL REPORT

The University of Minnesota Variety Club Heart Hospital is now in full operation. Prior to October 1, 1951, only thirty-eight beds were available to patients. This was due to the acute shortage of general duty nurses. Now an additional forty beds are ready for use. Altogether, the hospital has seventy-eight beds together with an Outpatient Department, x-ray and laboratory facilities, Occupational and Recreational Therapy, and Social Service Departments. Other specialized services are available to cardiac patients in the Main University Hospitals.

Patients may be admitted to either the Outpatient Department or the Inpatient Services on the referral of their family physician. The procedure is the same as that required for admission to the Main University Hospitals.

During the first six months of operation, the cases of congenital heart disease have equaled those of acute rheumatic fever and other collagen diseases. The cases of congenital heart disease have entered the hospital for either medical or surgical treatment. The lesions most commonly treated surgically were: 1, patent ductus arteriosus; 2, coarctation of the aorta; 3, tetralogy of Fallot and 4, stenosis of the pulmonary valve. Children with rheumatic fever are treated in this hospital during the acute phase of the disease and then are discharged to their homes or to the convalescent pavilion at Glen Lake Sanatorium.

The staff is instituting research projects dealing with coronary artery disease and hypertension and consequently will be interested in seeing more of these cases than have been seen to date.

ENDOCRINOGENIC AND NEUROGENIC FACTORS IN HYPERTENSION

JOHN J. EUSTERMANN, M.D.
Mankato, Minnesota

DISAGREEMENT exists among investigators working upon the neurogenic origin of hypertension just as it does among those stressing renal, humoral, and endocrine origins of hypertension. All investigators agree that the central and sympathetic nervous system plays a distinct and definite part in hypertension, but the question of origin on a neurogenic or psychosomatic basis is still very debatable.

Weiss and English, Alexander, Dunbar, Binger and Ackerman and many others have shown that personality disorders are commonly associated with encephalopathies, but certain changes may occur independently of cerebral disorders.[1,4,15] Intensive investigation of the personality pattern in a few individuals suggests that hypertensives tend to display "exaggerated dependent strivings, submissiveness coupled with stubbornness, feelings of weakness and defenselessness, suppression of hostility, fear of injury and emotional detachment" that may lead to "acute emotional disorders resulting from the inefficiency of the patterns of defense against anxiety and the weakness of repressive mechanisms."[1] It has been claimed that essential hypertension may be a somatic "manifestation of a psychoneurotic condition based on excessive and inhibited hostile impulses."[16] Studies have been made by the medical departments of the Russian, English and Finnish armies during the past war which have shown that the incidence of hypertension was highest amongst front line troops, and that the incidence decreased in those farther removed from the battle zone. Russian observers noted the marked increase of severe, often deadly, but frequently reversible forms of "neurohypertension" in young individuals under war conditions. Though similar reports are not present in the American literature, there is little doubt but that this form of hypertension did exist. Hypertension has been obtained in rats by subjecting them daily to intense explosive noises; the primary cause is a sensorial stimulus with psychical response.[2a] Patients frequently assert that they are more nervous and tense following the appearance of hypertension, even when they have not been informed of the presence of an elevated blood pressure. Rest, relaxation and freedom from care have long been known to have a beneficial effect in lowering blood pressure, and for years mild sedation has been used as treatment with considerable improvement in most patients. Moreover, elimination of supratentorial activity by general anesthesia or deep narcosis frequently has a striking depressor effect. The emotional component is so variable from person to person and from time to time that it can scarcely be accorded more than an incidental role in the pathogenesis of essential hypertension. On the other hand, abnormal subcortical activity involving the medullary vasomotor centers or the autonomic nervous system may be very important and may be subject, in a measure, to influence by higher centers.

Arterial pressure is regulated by reflex pathways through pressor receptor mechanisms located principally in the carotid and aortic bodies.[2] Hering, in 1927, showed that removal of the pressor regulator system, the aortic and carotid sinus nerves, produced acute hypertension in several species of animal, especially in the rabbit. Other investigators were able to obtain chronic hypertension in rabbits lasting for several months. Koch, in 1931, obtained hypertension which lasted several months in a dog as a result of resection of the carotid sinus and of the depressor nerves. A hypertension of 250 mm. or more may accompany this operation and becomes rapidly established after the operation. Tachycardia is at times pronounced and bears a relation to the degree of hypertension. The blood pressure in this type of hypertension is usually very fluctuant, with the pressure rising to great heights under conditions of excitement, and falling to essentially constant levels when the animals are quiet and at rest. Total bilateral ganglion sympathectomy, from the cervical ganglion to the pelvic chain, will cure or prevent the hypertension produced by the section of the pressor regulator nerves.[7] The administration of xyloquinine will likewise cause a marked fall in pressure in animals with neurogenic hypertension. Extirpation of the thoracic sympathetics will cause the pulse rate to return to normal in animals with neurogenic hypertension, but the blood pressure remains elevated. Hu-

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Read at the annual meeting of the Southern Minnesota Medical Association, Rochester, Minnesota, September 10, 1951.

Dr. Eustermann is a member of the Mankato Clinic, Mankato, Minnesota.

moral factors may play a role in this type of hypertension despite the fact that it seems to be a purely nervous hypertension. The presence of adrenalin and noradrenalin in the blood and tissues of these animals has not been investigated.[2]

The correlation of the functions of the adrenal gland and of the kidney is most pertinent in the discussion of functional or neural hypertension. It is generally believed today that increased activity of the sympathetic nervous system causes general or local vasoconstriction and an increased secretion of epinephrine. This increased secretion has then been regarded as responsible for the constriction of the renal blood vessels with consequent release of renin. The comparatively recent surgical treatment of hypertension has been based on this concept. In the first operation attempted with success in 1923 only a unilateral splanchnicotomy was done, but surgical sympathectomy has gradually developed into a more and more extensive operation. The operations of Rowntree and Adam, of Peet, of Smithwick, of Craig and Adson and of Crile have become classical and are now performed with considerable frequency throughout the world. All have included denervation of the adrenal medulla and the kidney blood vessels. Results have been both encouraging and discouraging, and will not be reviewed in this paper.

Heinbecker, White, Rolf and co-workers have recently brought forth a new concept of diastolic hypertension based essentially upon the results of studies of Cushing's syndrome.[8,9,10] They have shown that circulation in Cushing's sydrome is similar in its essential characteristics to that exhibited in persons with essential hypertension. In each the skin vessels are constricted, but the degree of constriction is such that the blood flow through them under the existing increased arterial pressure is normal or only slightly reduced. In both, the efferent glomerular arterioles are constricted first, and then with progression of the disease processes the total renal flow also is reduced. It is known that in Cushing's syndrome, which may be due to a tumor of the adrenal cortex, a tumor of the ovary or thymus or to an atrophy of the hypothalamic nuclei, there is a degeneration or hyalinization of the basophil cells of the neural hypophysis; at the same time there is a relative or actual increase in number of eosinophil cells. Evidence of overaction of the eosinophil cells is indicated by a decreased insulin sensitivity, by a decrease in lymphocytes of the circulating blood, by masculinization and by development of obesity. For dogs it has been shown that eosinophils are trophic to the adrenal cortex. Evidence of lessened action of basophil cells is considered to be an elevation of blood cholesterol and a diminution of basal metabolic rate. Heinbecker and White have denervated the neural hypophysis in dogs and noted that such a procedure caused varying degrees of rise in diastolic pressure as well as results characteristic of eosinophilic overactivity and basophilic underactivity. It has been found that following the administration of an extract from the anterior lobe of the pituitary, or of adrenal cortical extract, or of simultaneous administration of both, there results a constriction of the efferent glomerular arteries. This, in turn, by decreasing the blood flow to the renal tubules, is considered to lead to a release of renin. The combined action of these three humors is held responsible for the extrarenal arteriolar narrowing and resultant diastolic hypertension. To account for the development of hypertension in persons where there are no recognizable primary causes, such as have been demonstrated in Cushing's syndrome, and who, therefore, have been designated as having essential hypertension, these workers postulate that functional influences in the central nervous system, particularly in the frontal lobes of the cerebral cortex, normally may depress the hypothalamic nuclei which control the secretion of the neural hypophysis. The anatomic and physiologic bases for such influences are well established. On depression of the functional activity of these nuclei there results a diminution in the secretion of the neural hypophysis. This, on the basis of experimental evidence presented, can be assumed to result in a stimulation of the eosinophil cells of the hypophysis and these in turn stimulate the adrenal cortex to greater activity. The combined influence of the anterior pituitary hormone and of the adrenal cortical hormone is to effect a constriction of the efferent glomerular arterioles of the kidney and a release of renin. The combined action of the three humors here, as in Cushing's syndrome, is held responsible for the arteriolar narrowing and the development of diastolic hypertension.

The existence of human hypertension of purely endocrine origin is a generally accepted fact; the hypertensive state associated with pheochromocytoma of the adrenal is perhaps the best known and understood example of this type of hypertension.[3,6] The adrenal gland itself has been shown to play the largest role of the endocrine glands in the development of essential hypertension even if it has been accorded a secondary role by some investigators. Complete excision of both adrenals in the dog interferes with the development of hypertension due to constriction of the main renal arteries unless supportive and substitution therapy is given. In hypertensive animals also, hypophysectomy causes a fall in the blood pressure which is due to adrenal hypofunction; adrenocorticotrophin restores the pressure to the former hypertensive levels.[11] The removal of the posterior lobe of the hypophysis has no action on the blood pressure of normal mammals or animals with renal hypertension. When only a small part of the cortex of a single adrenal remains, there is no interference with the development of experimental hypertension in the dog. If both adrenals of a hypertensive animal are removed, the blood pressure promptly drops to normal.

Great attention has been focused upon the work of Selye within the past three or four years in regard to the subject of hormonal factors in the production of hypertension.[13,14] This investigator, the originator of the general-adaptation-syndrome, believes that stress (or "disease of adaptation," the results of excessive or abnormal adaptive reactions to stress) initiates a chain reaction which ultimately causes an increased blood pressure. The stress, through unidentified pathways, possibly blood-borne tissue catabolites, sets into action a hypophyseo-adrenal defense mechanism. It first acts upon the hypophysis, causing it to increase corticotrophin production at the expense of a decreased production of gonadotropins, luteotrophin, growth hormone, et cetera. The rise in corticotrophic hormone secretion causes enlargement of the adrenal cortex with signs of increased corticoid production. These corticoids in turn elicit changes in organic (such as gluco-corticoids producing increased glyconeogenesis) and inorganic (mineralo-corticoids) metabolism as well as such changes as atrophy of the thymus and other lymphatic tissues, changes in the joints, periarteritis nodosa, myocarditis and nephrosclerosis. The exact mechanism of action of the mineral-corticoids upon the kidney (nephrosclerosis) is unknown but probably is dependent upon their action on electrolyte metabolism and sodium retention; the withdrawal of sodium inhibits their effect and purified gluco-corticoids cause no nephrosclerosis. The nephrosclerotic kidney then presumably produces an increased amount of renin and the hypertensive state ensues.

The removal of the anterior lobe of the hypophysis produces a fall in the blood pressure in normal dogs and rats. In the latter, the normal level of the blood pressure can be restored in part by the administration of desoxycorticosterone, totally by the administration of adrenocorticotrophine. The blood pressure is restored in these animals by the administration of desoxycorticosterone or of sodium salts and in the rat by the administration of cortisone. In normal man cortisone has no effect on the blood pressure, but it does cause an increase in pressure in patients with Addison's disease.[12]

Conclusions

The etiology of hypertension is unknown. Some of the psychogenic, neurogenic and endocrinogenic factors which play a part in its formation have been discussed.

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President's Letter

RETROSPECTIVELY SPEAKING

Looking back over the present year, one feels that the medical profession, state and national, has accomplished much—scientifically, through physicians' constant endeavors to be better prepared for their work; educationally, in presenting the position and ideals of medicine to the public, in their context of American life and thought; economically and politically, through watchful caution and co-ordinated action.

While we are, happily, not so near socialized medicine and national socialism as we were in 1950, the fight is not won. A system of "creeping socialism" is being urged on us, a bit here and more there, with baits like free hospitalization for those over 65. Do not think that the groups fostering these plans have any thought of relaxing. When we see the evidence of bureaucracy at work in our national government, we begin to realize what a rich hunting ground socialized medicine would provide.

The heavy hand of bureaucracy has shown itself in many ways: its punitive action may be interpreted from an example in Indiana, where the federal security administrator cut off $18,000,000 in relief money because the state was releasing the names of relief recipients; its economic hold on the states may be illustrated by the way tax money is trimmed by federal costs of administration before being sent back to the states—and that with restrictions as to how it may be spent.

I know that the profession is alert to all the aspects of the dangerously expandable area known as bureaucracy, and in the year ahead will move forward courageously and effectively to combat any threatening ideologies.

Now, at this time, I would like to thank the many members of the profession who were kind enough to advise and help me and make the past year a rich experience for me. I have been amazed to note how much hard work is being done by the officers in various communities, the House of Delegates and the Council. I have been greatly pleased to note what appears to be an increasing interest in the affairs of the medical society, and especially by younger groups. This is as it should be.

Allow me here to extend to each one of you my best wishes for the Christmas season and a New Year that will be a happy one for you.

J. F. Norman

President, Minnesota State Medical Association

Editorial

Carl B. Drake, M.D., *Editor;* George Earl, M.D., Henry L. Ulrich, M.D., *Associate Editors*

NEW VA LAW

RECENT legislation provides that "service connection may be presumed" for all psychosis cases developing within two years after discharge from service for World War II veterans and those in service since the start of the Korean War. It is estimated that this law may require the Veterans Administration to provide for some 9,000 veterans who before passage of the law were listed as suffering from non-service-connected disability and entitled to hospitalization but not out-patient care, only if facilities were available.

All of the 53,000 neuropsychiatric beds of the VA hospitals are at present occupied by psychiatric patients, some with non-service-connected disabilities. These cannot very well be discharged. In order to comply with this new law, these 9,000 veterans now entitled to hospital care will have to be admitted to the hospitals in preference to those with non-service-connected disabilities who may be admitted only if there is room. An undetermined number of these 9,000 psychiatric veterans are now in state institutions and presumably may continue there at VA expense. How many more veterans will eventually be added to this category is impossible to estimate.

IMPROVING PUBLIC RELATIONS

GOOD public relations depends on mutual confidence and respect between the individual patient and physician. Disruption of this relationship is in most cases due to misunderstanding in regard to money matters. This has been demonstrated by the grievance committees established by medical societies all over the country, which enable dissatisfied patients to air their complaints regarding their medical care. In most cases, it has been found, complaints of overcharging by physicians have been cleared up by frank discussions between patient and physician.

With the idea of preventing these misunderstandings a plaque for placing in the physician's office has been prepared* at a nominal charge which simply and straightforwardly states.

> TO ALL MY PATIENTS
>
> I invite you to discuss frankly with me any question regarding my services or my fees. The best medical service is based on a friendly mutual understanding between doctor and patient.

The physician who places this plaque in his office indicates his willingness to discuss all matters regarding his services including fees, either before or after they are rendered. This does not mean that he wishes to encourage his patients to shop around with the idea of choosing the cheapest service available. Medical service should involve more than the mere exchange of dollars. Extenuating circumstances such as financial status should be and are taken into consideration by physicians.

We believe that the placing of this plaque in a physician's office is a step in the right direction towards improving public relations.

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*This plaque, suitable for hanging in a physician's office, may be obtained from AMA headquarters for one dollar.

TAXES AND OUR CHANGING AGE DISTRIBUTION

WE OF the medical profession are inclined to point with pride to the increase in life expectancy from forty-nine in 1900 to sixty-nine in 1950. The possibility and even likelihood of serious economic repercussions from this improvement in life expectancy are brought out by Frank G. Dickinson, director of the Bureau of Medical Economic Reserach of the AMA, in a recent address.†

Whereas, the population of the United States has doubled since 1900, the number of people in the country over sixty-five has quadrupled. By 1980, one out of every eight in the country's population will be over sixty-five. Two of the eight will be under the age of twenty. This means that five of each group of eight in the population will be in the wage-earning age and will have to support three others—two under the age of twenty and one over sixty-five.

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†Reprint from Problems of America's Aging Population, Vol. I, Institute of Gerentology Series, University of Florida Press, Gainesville, 1951.

One may be inclined to argue that Social Security payments will largely take care of the support of those over sixty-five. When we consider that the funds contributed by wage earner and employer under Social Security consist largely of merely stacks of non-negotiable but interest-bearing Government bonds in the Treasury Department and that when claims exceed current contributions they will be paid out of general tax revenues, the seriousness of the future tax situation becomes apparent.

As Dickinson points out, the group of the indigent aged is going to elicit sympathy in the future as the most needy, economically speaking. At the time of Karl Marx and his contemporaries, it was the laborer and factory worker who needed sympathy and had to fight for enough food and clothing in order to survive. Today, this group is not in need of these essentials and is, indeed, well supplied with the comforts of life. Any increase in wages for this group will more likely be spent on increased comforts of living, such as automobiles, electric refrigerators, televisions, et cetera.

Whereas, in 1900, 24 per cent of the population was over fifty years of age, this percentage had increased to 33 per cent in 1947. This constitutes a large proportion of the voters. What if some demagogue should come along advocating free hospital care, free medical care, free housing, free food for those over sixty-five. Free hospital care for those over sixty-five and covered by Social Security has already been advocated by Oscar Ewing. The ever-increasing proportion of voters in the older age group will present an ever-increasing danger of legislation favoring this group at the expense of the productive group. This would logically result in co-operation between laborer and employer in the political field to prevent taxes from becoming unbearable and a shifting of conflict from the field of employer and laborer to that of youth and old age.

Townsendism may not have been a serious issue in years past. According to Dickinson, it may prove as important an issue in the next fifty years as the doctrines of Karl Marx were in the last half century.

Dickinson warns (and he is right) that we are creating a world in which our children will have little to look forward to but a life of work, earning and paying taxes.

HOW DOES ONE OBTAIN A POSTMORTEM EXAMINATION?

IN the so-called private hospital, the method of obtaining a postmortem examination is antiquated and decidedly cumbersome. The teaching hospitals have a high index of psychological pressure and a much larger staff which affords them higher ratios of examinations. Even in these hospitals the method could be improved.

The difficulty in the private hospital is due to a combination of reasons. There is the persistence of the old idea that a patient in the hospital is the property of the clinician. Again, only recently have hospitals developed facilities for well-documented records. When compared with other functions of hospital management, the official part of the business of getting a postmortem examination has not been developed.

Morally and legally, when a patient enters a hospital the patient is a charge of the hospital. The clinician who attends the patient is merely the therapeutic agent. The time has arrived when the management should assume the responsibility of obtaining necropsy records. This record is a hospital record. Every possible opportunity has developed to perform postmortems, but the method of obtaining the examination by the management has been neglected. The management still defers to the clinician's wishes and leaves the onus of getting the postmortem examination entirely to the clinician. There lies the crux of the cause for low ratios in our hospitals.

Let us detail the present method. With variations, this is the usual mode of procedure.* When a clinician is notified that a death has occurred, he urges the intern to "get a post." If the intern fails he, himself, tries to "get a post." If he has had success, he must notify the pathologist; he must arrange the time at the mortuary; he must obtain the writ of consent; he must present it to the pathologist. All of this is time-consuming and a heavy burden on the clinician. All of the above duties could and should be a part of the official business of the hospital.

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*The description is based on experience at Abbott, Asbury, Northwestern, Deaconess, Eitel and Swedish Hospitals, of Minneapolis.

Think of what a pressure or weight of persuasion can be put on the relatives if the approach came originally from the hospital. It would have an authoritative note which the clinician sadly lacks in this trying period.

The following plan is suggested in which the hospital takes its proper place to obtain a necropsy report:

1. *The nursing staff:* As soon as a death occurs, the head nurse in charge should suggest to the relatives, "Of course, you intend to have a postmortem examination."

2. *The house staff:* The house officer or intern should immediately acquaint the relatives of the desirability of postmortem examination; and request it, with the permit all ready to sign.

3. *The hospital office:* The "front" official in charge at the time should urge the importance of an autopsy, with a permit ready to be signed.

These three stages might be called the bombardment or attack on the relatives.

Meanwhile, the pathologist should have been alerted concerning the death. He should also appear as an official of the hospital to lend his persuasion for the examination. If all these approaches fail, the clinician should and would make the final appeal.

This approach, with its impersonal quality, will emphasize the importance of postmortem examinations in the public mind. Furthermore, the hospital will have taken its proper place in improving its scientific status—and assumed the responsibility in obtaining the records for its archives.

To reiterate, "getting a post" is an administrative job and not the clinician's. The latter's attitude should be merely one of wanting a postmortem examination and always being willing to assist in getting one—that is, when all official efforts have failed.

—*An Internist.*

The above editorial was submitted to a hospital administrator and brought the following response:

After really thoughtful study of your paper, "How Does One Obtain a Postmortem Examination," I find that:

First: Your proposal jars many of my preconceived ideas of physician-patient (family) relationships.

Secondly: Under your arrangement I, unfortunately, am of the opinion that the number of staff men, interns and residents attending an autopsy on their patient would be less than at the present very low ebb.

Third: While to secure postmortem examinations by hospital authorities and thus keep up or increase the autopsy rate is meritorious, I have the feeling that this is too great a shift of interest in medical science from the physician to the corporation.

Fourth: From a public relations point of view, morticians are pretty universally trying to discredit hospitals where higher autopsy rates prevail, unless the rapport with the physicians is good.

Fifth: You are asking the hospital to keep the progress of medicine in motion.

Sixth: It may seem an extreme point of view, but when the hospital steps in at death, would an attitude grow up that it was a face-saving procedure because the physician had a failure?

Seventh: As a layman with a genuine interest in medical education, I have always assumed that the autopsy in the presence of the attending and house staff was the final opportunity for precise study of diseases in patients dying under hospital care, and occasionally to determine whether the hospital had been negligent in its care. I believe that the autopsy should, for best use, remain the objective concern of medicine.

Lastly, the body in life is, I believe, the resting place of one's immortal soul. Perhaps for this reason, rational or otherwise, Christ is called the great physician. Although in death the soul departs, the humble privilege of further exploration in the field of God's great handiwork should remain with his disciple, the physician.

Sincerely,

Administrator.

MEDICAL SOCIETY DUES

Now is the time for billing and paying medical society dues. The total for county, state and American Medical Association dues may seem a considerable item, but when one adjusts for a 54-cent dollar it doesn't seem so steep. Of course, when the bill includes unpaid AMA dues for 1950, the total is $25.00 greater than it would otherwise be, for the Council of the Minnesota State Medical Association voted at its meeting September 23, 1951, that county societies should continue billing unpaid AMA dues for 1950 and 1951 until paid.

The declaration of an assessment by the AMA in 1949 for financing the educational campaign to ward off government control of medical practice, which was voluntary and did not affect one's medical society membership, laid the groundwork for confusion. In 1950 the House of Delegates voted dues of $25.00 for the year, nonpayment of which sacrificed membership in the AMA but not in county society or state associations. In 1950 the AMA dues did not include subscription to *The Journal AMA* which was $12.00 additional. In 1951 the AMA dues of $25.00 included a subscription to *The Journal AMA,* separate subscription to which is now $15.00. This increase in the subscription price to $15.00 was made necessary by the increase in printing costs which has been considerable in the past decade.

Confusion was further enhanced when those who subscribed to *The Journal AMA* in 1950 continued to receive it in 1951, even if they did not pay their AMA dues for 1951. On the other hand, those who paid their AMA dues for 1951 but had failed to pay their 1950 dues did not receive *The Journal AMA*.

Further confusion has been caused by the existence of a special membership known as a "fellow." In 1951 this cost an extra $5.00. Beginning with the year 1952 there will be just one membership and no more "fellows."

The simple solution for each member in arrears would be to pay up in full, shoulder his share of the AMA expenses and take his place with the nearly 150,000 other physicians in the country who are banded together for the advancement of the science and art of medicine and the betterment of public health.

For $15.00 of his $25.00 AMA dues, the member receives $15.00 worth of *The Journal AMA*—one large number a week—or he may substitute a subscription to any one of the specialty journals. The balance of the $25.00—or $10.00—helps support the multitude of activities of the AMA. The only other income the AMA has is from advertisements in *The Journal AMA* and the nine specialty journals published by our national organization. Some of these journals are not self-supporting.

When we consider what we receive in return for our various medical society dues, it becomes evident that we receive more than our money's worth.

THE CHANGING MOLE

(Continued from Page 1158)

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GREATER UNIVERSITY FUND

In 1950, more than 2,300 alumni and friends of the University of Minnesota contributed over $100,000 to the many projects supported through the Greater University Fund.

Some of the activities made possible by the Fund are: A thermocouple that measures the rate of chicken-freezing in Poultry Husbandry; a tele-binocular used to improve children's reading in the Psycho-Educational Clinic; an electronic computor for nerve study in Physics; a machine with which Veterinary Medicine will record the heart and respiratory sounds of animals.

Not all of the Fund goes to scientific research. Each year at least forty freshmen are awarded $250.00 in Minnesota Alumni Scholarships. Three outstanding graduate students this year will receive Fellowships, each amounting to $1,200, plus tuition.

The Greater University Fund is sponsored by the Minnesota Alumni Association and is now conducting its fourth annual drive with $125,000 the goal.

Here is an opportunity to assist in a worthwhile project. Contributions which are income-tax deductable may be sent to the Greater University Fund, Coffman Memorial Union, University of Minnesota, Minneapolis 14, Minnesota.

A BOTANICAL CONSIDERATION OF THE WEED OLEORESIN PROBLEM

(Continued from Page 1173)

3. Not only are there differences in sensitizing capacity between botanical tribes but also there are differences in sensitizing capacity within a given tribe.

4. The probably antigenic relationships are indicated with respect to tribes *Anthemideae* (dog fennel) and *Heliantheae* (sunflower).

5. The profile of our cases dealing with the sunflower tribe *(Heliantheae)* resembles that of Shelmire's study of this same group of weeds.

6. Biologic studies will be carried out to determine further allergenic relationships between the various oleoresinous materials.

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869 Lowry Medical Arts Building

Medical Economics

Edited by the Committee on Medical Economics
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George Earl, M.D., Chairman

"FIGHT FIRE WITH FIRE" IOWA DOCTOR URGES

Members of the North Central Medical Conference, November 11, heard Dr. Fred Sternagel, West Des Moines, Iowa, warn that it is still necessary to be on guard against medicine's enemies and fight fire with fire. In his presidential address, Dr. Sternagel said, "We must be realists and fight fire with fire. We must meet every criticism of our profession, regardless of the source from which it may spring. We must have a definite and positive program of action."

Reviewing the medical profession's fight against socialized medicine in America, Dr. Sternagel stated:

> "The battle lines have been drawn. Those who are pushing this country into Socialism are on one side. On the other side there are many staunch defenders of traditional American freedom, but the immediate contest of the moment is between the leaders of the welfare state theory and American physicians. . . . We have been drawn into a fight, so let us be good fighters. We can't win this fight by name-calling or deploring the changes of the times. If we are going to save freedom we must do so by methods of freedom. We must prove that freedom is best for most people."

Pendulum Swinging Back

"We are firmly convinced," said Dr. Sternagel, "that the time has arrived for the pendulum to start swinging in the other direction. . . . We have had our backs to the wall, but we are gaining strength to surge forward and make our position secure. It may be part of the world-wide reaction against Socialism in England and imperialistic Communism."

Dr. Sternagel felt that this reaction does not mean that people no longer want the good things in life. He said:

> ". . . they are not convinced they can obtain such blessings through Socialism and Communism. They want to give free enterprise one more chance. This may be our last chance! If we fail to take advantage of it, what we think now is a reaction to the welfare state in our own government and Socialism and Communism abroad may be merely a pause—the quiet before the storm—the gathering of forces for a new onrush which we cannot stop.
>
> "The medical profession is being weighed in the balance. Let us not be found wanting! This is our fight for freedom! Let's win that fight!"

HOSPITAL CONSTRUCTION PROGRESS REPORTED

A total of thirty-nine projects in Minnesota are now receiving aid under the Hospital Survey and Construction Program, with a total of 477 beds, according to a report presented by A. J. Chesley, M.D., Secretary and Executive Officer, Minnesota State Department of Health. He states:

> "In addition to the thirty general hospitals, nine other projects are receiving assistance under the Hospital Survey and Construction Program as follows: three chronic disease units with a total of 287 beds; three mental disease hospitals (includes a receiving unit of a State mental hospital and two psychiatric units of general hospitals) plus a psychiatric unit in one of the general hospital additions shown above, total 190 beds; two public health centers, plus 180 beds in two nurses' homes, one of which is included as a part of one of the general hospital projects listed above. (Total 477 beds, exclusive of beds in nurses' homes.)"

Fifty General Hospitals Built

The report also shows that a considerable number of hospitals have been constructed without the aid of the federal grants. General hospitals completed during the past fifteen years include a total of fifty, with an aggregate of 1,928 beds. In addition to these, the report reveals that a 122-bed chronic disease unit was opened; the State of Minnesota is providing mental disease facilities at six of the State hospitals as follows: eight geriatric units with a total of 1,200 beds; three receiving units with a total of 198 beds; a continued treatment building with 204 beds and a 112-bed medical-surgical unit. Also a 251-bed tuberculosis unit was completed; a thirty-seven-bed neurological rehabilitation unit was added to another hospital; and seventy-one additional beds for the care of tuberculosis patients were added to another hospital. This makes a total of 2,195 beds added to the state's hospital facilities without the assistance of federal funds.

Goal: A Co-ordinated System

An over-all goal for the hospital construction program is presented by this report:

> "As the construction of hospitals progresses, it is hoped that institutions and their services will develop toward a co-ordinated system which can provide complete care for all patients. The existing and proposed hospitals are classified as base, regional, area and rural hospitals. . . ."

Commends Co-operating Groups

The report lauds the efforts of co-operating organizations to bring about certain improvements in existing services in Minnesota: "Efforts are being directed toward the development of better services in hospitals. This includes an expansion of existing training programs for hospital personnel as well as a general educational program relative to the need for and the use of improved services, particularly in the more rural areas of Minnesota. . . . It is the intent of these and other interested organizations to develop plans for meeting deficiencies in these services in Minnesota."

FOES OF HOSPITALIZATION FOR AGED CALLED "HEARTLESS"

Oscar Ewing, in his continued attempts to get his schemes approved for federal application, is using mass psychology to create sympathy for the recipients of one of his welfare plans. In announcing the plan to provide free hospitalization for people over sixty-five, which would come out of Social Security funds, he did not believe that there would be much opposition to his plan. "I can't conceive that anyone with a heart would oppose this. This is something they would have paid for themselves in insurance. . . . I can't believe doctors don't want sick people to have attention."

Thus, Ewing challenges doctors to be heartless and deny sick old people the right to a free handout from the government. Ewing's play for sympathy should be studied for what it really is—an attempt to gain support for one of his pet programs with welfare state leanings.

It is because the medical profession has a deep concern for sick people, no matter what age, that it has taken up the fight to keep the nation free from such socialistic plans. Doctors are not denying sick people the chance for care, but they are constantly striving for improvements which will make it easier to provide more and better care. Doctors, and other forward-looking Americans, might stop and consider that, if they "have a heart" in this case, they may well pay for it too strongly through further taxes and many more government controls, contingent upon this and other similar plans. Mr. Ewing may well take the advice of Mr. John Wanamaker: "No man starting out need ever go over the road in the dark, if he take with him the light of other men's experience." Oscar Ewing should look to England for his inspiration, taking heed of that "light of other men's experience."

MAGAZINE MAY EVEN "TIP HAT" TO EWING

While one medical journal advises doctors to "take the incident as indicative of their urgent responsibility to 'wax heartless' again before it's too late," the October issue of *Medical Economics* says that "the new Ewing proposal might well be the nudge we've needed."

> "The day may yet come when we will quietly tip our hats in the direction of Oscar Ewing. By proposing 'free' hospital care for Social Security beneficiaries, he has focused attention on a genuine trouble spot—one that medical, hospital, and insurance men have side-stepped for too long."

Discussing this fundamental problem of the older age group, the publication feels that a basic need is the building up of old people's purchasing power. Under the Social Security Act, pension recipients get an average of $48 a month—far below an amount enabling economic freedom. The magazine states that Ewing's proposal "would, after all, merely superimpose a towering hospitalization giveaway on an unstable Social Security base."

MEDICINE URGED TO TAKE LEAD

In an odd sort of way, this whole problem of the aging population is the fault, or result of, the progress of medical science. Every day almost 3,000 Americans reach the age of sixty-five. On the average, they have thirteen years of retirement ahead of them. The astonishing increase in our sixty-five plus population stems in large part from medical advances. Thus, the magazine asserts, "it's logical that we take the lead in coping with the oldsters' health-cost plight."

SOFT SECURITY "NOT WORTH IT"

A recent editorial in the *New England Journal of Medicine* expresses vividly the thoughts of many who are weary of hearing about the blessings of security, the payment for which comes out of earnings, regardless of ability to pay. Classing the rush for security as a purchase too full of risks, and not worth the inert status security represents, the *Journal* states:

> "In the midst of unrest and danger and threats to the cherished social and economic institutions of the world, it is natural that there should be a turning toward whatever seems to offer security—or whatever can be labeled by that name. Security has been the goal of the common man since first he blockaded himself in his cave; it has been the intermittent, always vulnerable achievement of possessive man since flocks first were grazed in the Fertile Crescent between the twin rivers of Mesopotamia.

The *Journal* urges Americans to have the courage to say "no" to what appears to be Utopian, for it contains within it, the power of its own, and the individual's, destruction.

> "The purchase of a soft security, however, is always made at too great a price for the inert thing that it represents. A life untroubled by want from the cradle to the grave would be also a life unmarked by glorious hours, untouched by lofty emotions and unstirred by noble risks; it would be no more than a vicarious participation in the tumultuous affairs of the world—and the only guarantee that might accompany it could concern only its inevitable ending.
>
> "The only answer to the challenge appears to lie not in a passive apparent security—a withdrawal from the realities of existence purchased with inflated currency—but in the reactivation of certain basic virtues that are dependent on the courage to face facts as they are. 'The courage is needed to say "No" when to say "yes" is easier and pleasanter; to recognize the truth and to admit the inability to find the truth.' Courage is required to remain humble when others are vaunting themselves; to continue a righteous struggle when the effort seems doomed to failure; to fail, still striving for what has been accepted as the right."

UNRESOLVED PNEUMONIA

(Continued from Page 1168)

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18. Moore, F. J.; Thomas, R. E.; Kistler, M.; Ireland, R. M., and Hallstone, V. E.: Pneumococci pneumonia; analysis of records of 1,469 patients treated in the Los Angeles County Hospital from 1934 through 1938; part I. Arch. Int. Med., 66:1290-1316, (Dec.) 1940.
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20. Pickhardt, O. C.: Unresolved pneumonia. Arch. Surg., 12:192-205, (Jan.) 1928.
21. Scadding, J. G.: Chronic pneumonias. Proc. Roy. Soc. Med., 31:1259-1271, 1938.
22. Symmers, D., and Hoffman, A. M.: The increased incidence of organizing pneumonia. J.A.M.A., 81: 297-298, (July 28) 1923.
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24. Waddell, W. R.; Sniffen, R. C., and Sweet, R. H.: Chronic pneumonitis, its clinical and pathologic importance. J. Thoracic Surg., 18:707-735, (Oct.) 1949.
25. Worthen, J. F., and Rapp, M. S.: Syphilis as a cause of delayed pneumonic resolution. New York State J. Med., 43:419-420, (Mar.) 1943.

Despite the knowledge that Federal finances are in a critical phase, the Administration, while paying lip service to economy, contends that the Federal budget is tight, and offers stubborn resistance toward any retrenchment. In the meantime, Federal expenditures are rolling along in snowball fashion, with current outlays at the annual rate of $71.6 billion. The addition of state and local expenditures brings total governmental costs for the present fiscal year to over $92 billion. This sum is equivalent to $2,315 per family, or nearly four and one-half times the burden per family in 1939.

The time has come when the American people must take a vigorous and courageous stand for national solvency and be mindful of the warnings issued by Thomas Jefferson more than a century ago when he said: "We must make our selection between economy and liberty, or profusion and servitude." Congressmen who are fighting for economy in government should be given wholehearted support.

Everyone concerned about the welfare of the country should join the nation-wide movement to demand action on the Hoover Commission's recommendations for the elimination of waste in the Federal Government. To be victorious, this group must match the zeal and determination of the spenders who are squandering our substance and undermining the foundations of our freedom.—*Spotlight* No. 83. Published by committee for Constitutional Government, Inc.

MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

230 Lowry Medical Arts Bldg., Saint Paul, Minnesota

Julian F. Du Bois, M.D., Secretary

PHYSICIANS LICENSED FEBRUARY 16, 1951

January 1951 Examination

Name	*School*		*Address*
BARRETT, Jack William	St. Louis U.	MD 1946	102 110 2nd Ave. S.W., Rochester, Minn.
BEATON, Joseph Gordon	U. of Minnesota	MB 1942 MD 1943	101½ N. Minnesota St., New Ulm, Minn.
COWLEY, Howard Stephen	Creighton U.	MD 1941	102 110 2nd Ave. S.W., Rochester, Minn.
DOBSON, Ross Allan	U. of Toronto	MD 1949	102 110 2nd Ave. S.W., Rochester, Minn.
DOERR, John Charles	U. of Louisville	MD 1944	102 110 2nd Ave. S.W., Rochester, Minn.
GULLEY, John Lewis	U. of Toronto	MD 1945	102 110 2nd Ave. S.W., Rochester, Minn.
KELLY, John Moyer	U. of West. Ont. Can.	MD 1945	511 Lowry Med. Arts Bldg., St. Paul, Minn.
MAXWELL, John Burchiel	U. of Louisville	MD 1946	102 110 2nd Ave. S.W., Rochester, Minn.
McMANUS, Terence Burton	U. of Minnesota	MB 1950	Bank of Commerce Bldg., Milbank, S. D.
MEULI, Earle Joseph	U. of Wisconsin	MD 1949	Maunaloa, Molokai, T. H.
MICHAEL, Isaac Eldrew	U. of Chicago Rush Med. College	MD 1942	102 110 2nd Ave. S.W., Rochester, Minn.
MICHALEK, Louis Frank	U. of Washington	MD 1950	U. of S. D. Med. School, Vermilion, S. D.
MILLIKAN, Clark Harold	U. of Kansas	MD 1939	102 110 2nd Ave. S.W., Rochester, Minn.
MORRIS, Kenneth Lyle	Northwestern U.	MB 1942 MD 1943	102 110 2nd Ave. S.W., Rochester, Minn.
NEARY, Angus James	Dalhousie U., Can.	MD 1948	102 110 2nd Ave. S.W., Rochester, Minn.
REESE, Gilbert Alan	U. of Wisconsin	MD 1949	102 110 2nd Ave. S.W., Rochester, Minn.
SATHER, Howard L.	Marquette U.	MD 1948	St. Luke's Hospital, Chicago, Ill.
SCHERMAN, Quinten	U. of Oregon	MD 1945	102 110 2nd Ave. S.W., Rochester, Minn.
THOMPSON, Jr., Ollie Hammond	Johns Hopkins U.	MD 1946	102 110 2nd Ave. S.W., Rochester, Minn.
WHEELER, Gilbert Stephen	U. of Manitoba	MD 1949	Roseau, Minn.
WOOD, Earl Howard	U. of Minnesota	MB 1941 MD 1941	102 110 2nd Ave. S.W., Rochester, Minn.

Reciprocity Candidates

Name	*School*		*Address*
BARRY, Jr., Maurice J.	U. of Indiana	MD 1944	102 110 2nd Ave. S.W., Rochester, Minn.
BENSON, Alfred Homer	Loyola U.	MD 1940	105½ 1st St. S.E., Little Falls Minn.
BRENNAN, James W.	U. of Buffalo	MD 1938	570 Delaware Ave., Buffalo, N. Y.
BUCHANAN, Gerald S.	Coll. of Med. Evang.	MD 1950	Deer River Hospital Clinic, Deer River, Minn.
ELLERTON, Jr., Leonard Melvin	U. of Iowa	MD 1946	126 E. William St., Albert Lea, Minn.
GAUNT, William Danforth	Washington U. St. Louis, Mo.	MD 1948	102 110 2nd Ave. S.W., Rochester, Minn.
HELDEN, Rudolph Andrew	Jefferson Med. Col.	MD 1945	102 110 2nd Ave. S.W., Rochester, Minn.
MANNING, Phil Richard	U. So. Calif.	MD 1948	102 110 2nd Ave. S.W., Rochester, Minn.
MARKS, Richard Lewis	Vanderbilt U.	MD 1936	137 Vine Ave., Park Ridge, Ill.
MARTIN, Harold R.	U. of Indiana	MD 1944	102 110 2nd Ave. S.W., Rochester, Minn.
McFARLANE, John Alvin	Washington U. St. Louis, Mo.	MD 1948	102 110 2nd Ave. S.W., Rochester, Minn.
MORTENSEN, J. D.	U. of So. Calif.	MD 1946	102 110 2nd Ave. S.W., Rochester, Minn.
MULDER, Donald William	Marquette U.	MD 1943	102 110 2nd Ave. S.W., Rochester, Minn.
RUDESILL, Robert Louis	U. of Indiana	MD 1947	102 110 2nd Ave. S.W., Rochester, Minn.
SCHLEMENSON, Saul Melvin	U. of Michigan	MD 1943	410 Doctors' Bldg., Minneapolis, Minn.
SHAFFER, James Milton	Western Reserve U.	MD 1946	U. of Minn., Dept. Pharm., Minneapolis, Minn.
SIMON, Thomas Raymond	St. Louis U.	MD 1945	St. Cloud Hospital, St. Cloud, Minn.
SMITH, CHARLES Felps	U. of Indiana	MD 1946	102 110 2nd Ave. S.W., Rochester, Minn.
SPENCER, Jr., Fred Davis	U. of Texas	MD 1942	102 110 2nd Ave. S.W., Rochester, Minn.
STEINHILBER, Richard Miller	Hahnemann Med. Col.	MD 1945	102 110 2nd Ave. S.W., Rochester, Minn.
WAGONER, James Marion	U. of Indiana	MD 1945	Harmony, Minn.
WAUD, Robert Edgar	St. Louis U.	MD 1947	AUS: E. 115 S. 4th St., Grangeville, Ida.
WUEST, Jr., John Henry	U. of Louisville	MD 1947	102 110 2nd Ave. S.W., Rochester, Minn.

National Board Candidates

Name	*School*		*Address*
ANDERSON, Harris Renard	Northwestern U.	MB 1949 MD 1950	3882 Sch. Squadron, S. A. M., Box 59, Gunter A.F.B., Montgomery, Ala.
BAUER, Donald deForest	McGill U.	MD 1942	Miller Hospital, St. Paul, Minn.
EDWARDS, Laura Elaine	U. of Minnesota	MB 1948 MD 1949	c/o Baptist Gen. Conference of America, 912 Belmont Ave., Chicago, Ill.

FAHL, James Cox	Harvard U.	MD 1948	102 110 2nd Ave. S.W., Rochester, Minn.
GUNDERSEN, Gunnar Adolf	Harvard U.	MD 1948	Ebner's Coulee, La Crosse, Wis.
HERBST, William Parker	Harvard U.	MD 1946	102 110 2nd Ave. S.W., Rochester, Minn.
HUBBARD, Jr., Thomas Brannon	Columbia U.	MD 1942	U. of M. Hospitals, Minneapolis, Minn.
KINGSLEY, Buell Chapin	U. of Oregon	MD 1948	U. S. Naval Hospital, Bremerton Wash.
KRUMBACH, Ronald William	Syracuse U.	MD 1948	U. of M. Hospitals, Minneapolis, Minn.
LOWRY, Jeanette Kraemer	U. of Minnesota	MB 1948 MD 1949	U. of M. Hospitals, Minneapolis, Minn.
LUBIN, Robert Irving	U. of Iowa	MD 1949	Vet. Adm. Hospital, Minneapolis, Minn.
LYNN, Thomas Edward	Northwestern U.	MB 1949 MD 1950	102 110 2nd Ave. S.W., Rochester, Minn.
OGBURN, Paul Lanier	Duke U.	MD 1946	102 110 2nd Ave. S.W., Rochester, Minn.
PERSON, Waldemar Norman	Loyola U.	MD 1946	102 110 2nd Ave. S.W., Rochester, Minn.
PHILLIPS, John Wesley	St. Louis U.	MD 1946	102 110 2nd Ave. S.W., Rochester, Minn.
PIERCE, Jack Reed	U. of Buffalo	MD 1943	401 5 So. 1st St., Virginia, Minn.
SMITH, Meredith Parks	U. of Maryland	MD 1949	102 110 2nd Ave. S.W., Rochester, Minn.

PHYSICIANS LICENSED MAY 18, 1951

April 1951 Examination

Name	*School*		*Address*
BERNIER, Merrill Joseph	Northwestern U.	MB 1949 MD 1950	1234 Division St., No. St. Paul, Minn.
CRAYCHEE, Walter Albert	Temple U.	MD 1945	118 S. Main, Fairmont, Minn.
DONIN, Jerry Frank	U. of Manitoba	MD 1950	102 110 2nd Ave. S.W., Rochester, Minn.
DORNBACH, Robert Arthur	Georgetown U.	MD 1950	Mpls. Gen. Hospital, Minneapolis, Minn.
FIELD, Harold C.	Northwestern U.	MB 1950 MD 1951	106 S. 4th St., Guthrie Center, Iowa
FLORA, George Claude	Temple U.	MD 1950	St. Barnabas Hosp., Minneapolis, Minn.
KRAMER, Stephen Elliott	Georgetown U.	MD 1933	Anoka State Hospital, Anoka Minn.
LAMB, Henry Douglas	Guy's Hosp. Sch., U. of London, England	LMSSA 1937	Students Health Serv., U. of Minnesota, Minneapolis, Minn.
LOCKHART, Henry Bent	U. of Toronto	MD 1944	102 110 2nd Ave. S.W., Rochester, Minn.
LORENTZEN, Ernest Stanley	Northwestern U.	MB 1950	Detroit Lakes, Minn.
McKINLAY, Gordon Lynn	U. of Chicago	MD 1950	Mpls. Gen. Hospital, Minneapolis, Minn.
MICHELA, Bernard Joseph	Cornell U.	MD 1949	St. Mary's Hospital, Duluth, Minn.
MICHELSON, Therese	Creighton U.	MD 1949	3517 Oakland Ave., Minneapolis, Minn.
QUIGGLE, Arthur, Benajhar	U. of Minnesota	MB 1950	U. of M. Hospitals, Minneapolis, Minn.
RUFF, John Douglas	Med. Col. of So. Car.	MD 1946	102 110 2nd Ave. S.W., Rochester, Minn.
SNIDER, Howard Roy	U. of Oregon	MD 1950	Mpls. Gen. Hospital, Minneapolis, Minn.
SOSHEA, John William	Northwestern U.	MB 1949 MD 1950	102 110 2nd Ave. S.W., Rochester, Minn.
TEIPNER, William Albert	U. of Oregon	MD 1950	Mpls. Gen. Hospital, Minneapolis, Minn.
WHITMER, John Harrison	U. of Oregon	MD 1950	315 Wing Bldg., Grants Pass, Ore.

Reciprocity Candidates

Name	*School*		*Address*
BLOOD, Arthur McCrary	Emory U.	MD 1945	102 110 2nd Ave. S.W., Rochester, Minn.
BRIDGE, Ezra Volk	Cornell U.	MD 1940	Mineral Springs San., Cannon Falls, Minn.
BURLESON, Robert Joe	U. of Louisville	MD 1943	102 110 2nd Ave. S.W., Rochester, Minn.
COUGHLIN, Bertrand Daniel	St. Louis U.	MD 1931	1829 Med. Arts Bldg., Minneapolis, Minn.
CRAIG, Joseph Deafner	Ohio State U.	MD 1947	102 110 2nd Ave. S.W., Rochester, Minn.
CROMARTIE, William James	Emory U.	MD 1937	224 Millard Hall, University of Minn., Minneapolis, Minn.
DAVIS, Neal Balbach	U. of Nebraska	MD 1950	102 110 2nd Ave. S.W., Rochester, Minn.
ERICKSON, George Philip	Creighton U.	MD 1949	2229 3rd Ave. E., Hibbing, Minn.
FORNEY, William Dwight	U. of Chicago	MD 1948	102 110 2nd Ave. S.W., Rochester, Minn.
FRAZIER, Shervert Hughes	U. of Illinois	MD 1943	102 110 2nd Ave. S.W., Rochester, Minn.
GREEN, Paul Anderson	U. of Oklahoma	MD 1946	102 110 2nd Ave. S.W., Rochester, Minn.
HENDERSON, Charles Carey	Southwestern U.	MD 1945	102 110 2nd Ave. S.W., Rochester, Minn.
HILDEBRAND, John Edward	Wayne U.	MD 1944	502 Beltrami, Bemidji, Minn.
JACKSON, Robert Toombs	U. of Georgia	MD 1941	102 110 2nd Ave. S.W., Rochester, Minn.
JACOB, Jr., Norman Henry	U. of Texas	MD 1945	U. of M. Hospitals, Minneapolis, Minn.
KEMP, Jr., Robert Christie	Tulane U.	MD 1935	1829 Med. Arts Bldg., Mineapolis, Minn.
KLAKEG, Clayton Harold	Temple U.	MD 1945	102 110 2nd Ave. S.W., Rochester, Minn.
MENGES, Charles George Henry	Temple U.	MD 1943	102 110 2nd Ave. S.W., Rochester, Minn.
NORRIS, Lewis Duroc	U. of Iowa	MD 1943	1009 Nicollet Ave., Minneapolis, Minn.
ROBERTS, Stanley Eugene	Washington U.	MD 1946	102 110 2nd Ave. S.W., Rochester, Minn.
SULLIVAN, Charles Roger	U. of Rochester	MD 1946	102 110 2nd Ave. S.W., Rochester, Minn.
SWAIN, Francis M.	U. of Louisville	MD 1942	1210 Lowry Med. Arts Bldg., St. Paul, Minn.

National Board Candidates

			Address
FRY, Donald Lewis	Harvard U.	MD 1949	Vet. Adm. Hospital, Minneapolis, Minn.
HABEIN, Jr., Harold Clinton	U. of Minnesota	MB 1946 MD 1950	102 110 2nd Ave. S.W., Rochester, Minn.
HARDY, William McClure	George Washington U.	MD 1949	102 110 2nd Ave. S.W., Rochester, Minn.
JOHNSTON, Edward Vaughan	Northwestern U.	MB 1946 MD 1947	102 110 2nd Ave. S.W., Rochester, Minn.
SHAFER, Charles Leon	Harvard U.	MD 1946	102 110 2nd Ave. S.W., Rochester, Minn.
VIVIAN, Donald Norman	Boston U.	MD 1946	102 110 2nd Ave. S.W., Rochester, Minn.

PHYSICIANS LICENSED JULY 20, 1951

June 1951 Examination

Name	*School*		*Address*
AGER, Ernest Arthur	U. of Minnesota	MB 1951	St. Mary's Hospital, Duluth, Minn.
AHOLA, Kenneth Emil	U. of Minnesota	MB 1951	Mpls. Gen. Hospital, Minneapolis, Minn.
ALEXANDER, Carl Stuart	Columbia U. Col. of Phy. & Surg.	MD 1948	U. of M. Hospitals, Minneapolis, Minn.
ANDERSON, John William	U. of Minnesota	MB 1951	Ancker Hospital, St. Paul, Minn.
ANDERSON, Wallace Everett	U. of Minnesota	MB 1951	Ancker Hospital, St. Paul, Minn.
BAER, Walter	Albert Ludwigs U. Freiburg, Germany	MD 1921	814 Lowry Med. Arts Bldg., St. Paul Minn.
BERGE, Kenneth George	U. of Minnesota	MB 1951	Boston City Hospital, Boston, Mass.
BERKAS, Ernest Maurice	U. of Minnesota	MB 1951	St. Joseph's Hospital, St. Paul, Minn.
BLANCHARD, Russell Stanfield	U. of Minnesota	MB 1951	St. Barnabas Hosp., Minneapolis, Minn.
BOLSTAD, Owen C.	U. of Minnesota	MB 1951	St. Luke's Hospital, Duluth, Minn.
BOLTER, Arthur	U. of Minnesota	MB 1951	Sacramento Co. Hosp., Sacramento, Cal.
BROKKEN, Jack Ridley	U. of Minnesota	MB 1951	Mercy Hospital, San Diego, Calif.
CANNON, Thomas Patrick	U. of Minnesota	MB 1951	Letterman Army Hospital, San Francisco, Calif.
CAREY, Jr., James Bain	U. of Minnesota	MB 1951	U. of M. Hospitals, Minneapolis, Minn.
COBB, Jr., Leonard Arthur	U. of Minnesota	MB 1951	U. of Iowa Hospital, Iowa City, Iowa
CUMMING, Edward Dale	U. of Minnesota	MB 1951	U. of M. Hospitals, Minneapolis, Minn.
DÖSCHERHOLMEN, Alfred	U. of Oslo, Norway	Master Art's in Med. 1946	Asbury Hospital, Minneapolis, Minn.
DURYEA, Jr., Willis Mortimer	U. of Minnesota	MB 1951	Ancker Hospital, St. Paul, Minn.
EDWARDS, Donna Mae	U. of Minnesota	MB 1951	2700 Utica Ave., St. Louis Park, Minneapolis, Minn.
ELI, Earl Wilbur	U. of Minnesota	MB 1951	King's Co. Hospital, Seattle, Wash.
ELROD, Calvin Roger	U. of Minnesota	MB 1951	King's Co. Hospital, Seattle, Wash.
ERLANSON, Andrew Cornell	U. of Minnesota	MB 1951	699 S. Snelling, St. Paul, Minn.
FRYDENLUND, Conrad Bernard	U. of Minnesota	MB 1951	San Bernardino Co. Hosp., San Bernardino, Calif.
GILL, Theodore Marshall	U. of Minnesota	MB 1951	Mpls. Gen. Hospital, Minneapolis, Minn.
HAGEN, John Doran	U. of Minnesota	MB 1949 MD 1950	Vet. Adm. Hospital, Minneapolis, Minn.
HALD, Christian Peter	U. of Minnesota	MB 1951	Santa Clara Co. Hosp., San Jose, Calif.
HALFHIDE, Rudolph A.	McGill U.	MD 1944	102 110 2nd Ave. S.W., Rochester, Minn.
HANSEN, Milo Luverne	U. of Minnesota	MB 1951	Ancker Hospital, St. Paul, Minn.
HANSON, Martin Everett	U. of Chicago	MD 1950	368 Forest Drive S. E., Cedar Rapids, Ia.
HEIMARK, John Jacob	U. of Minnesota	MB 1951	San Francisco Hosp., San Francisco, Cal.
HEISEL, John George	Marquette U.	MD 1950	1302 Tower Ave., Superior, Wis.
HENDRICKS, Curtis John	U. of Minnesota	MB 1951	Ancker Hospital, St. Paul, Minn.
HEPPER, Norman Gordon	U. of Illinois	MD 1946	102 110 2nd Ave. S.W., Rochester, Minn.
HERMAN, Bernard Edward	U. of Minnesota	MB 1951	Michael Reese Hospital, Chicago, Ill.
HOLLIFIELD, Guy Foster	U. of Virginia	MD 1950	Mpls. Gen. Hospital, Minneapolis, Minn.
HOLTER, Wallace Russell	U. of Minnesota	MB 1951	2701 Monterrey Ave., Minneapolis, Minn.
HOOPER, Worth A.	U. of Minnesota	MB 1951	San Diego City & County Hospital, San Diego, Calif.
HOULTON, William Henry	U. of Minnesota	MB 1951	Mpls. Gen. Hospital, Minneapolis, Minn.
HUFFINGTON, Herb Leonard	U. of Minnesota	MB 1951	Santa Clara Co. Hosp., San Jose, Calif.
JACKSON, Richard Lewis	Marquette U.	MD 1946	102 110 2nd Ave. S.W., Rochester, Minn.
JAHNKE, William Robert	Temple U.	MD 1949	U. S. Navy Recruiting Station, Federal Office Bldg., Minneapolis, Minn.
JOHNSON, Thomas Stanley	U. of Minnesota	MB 1951	U. S. Naval Hosp., Bethesda, Md.
KELLEY, Roger Edwin	U. of Minnesota	MB 1951	Henry Ford Hospital, Detroit 2, Mich.
KELLY, Charles Francis	U. of Minnesota	MB 1951	4224 Cedar Ave., Minneapolis, Minn.
KNOEDLER, John Paul	Marquette U.	MD 1950	Vet. Adm. Hospital, Minneapolis, Minn.
KOSIAK, Jr., John	U. of Minnesota	MB 1950 MD 1951	c/o Postmaster, Interlaken, N. Y.
KRAFFT, Walter Edwin	U. of Minnesota	MB 1951	St. Luke's Hospital, Chicago, Ill.
KURTH, Milton Elmer	U. of Illinois	MD 1936	102 110 2nd Ave. S.W., Rochester, Minn.
LARSON, Lewis William	U. of Minnesota	MB 1951	Ancker Hospital, St. Paul, Minn.
LATTS, Elliot Mandel	U. of Minnesota	MB 1951	Phila. Gen. Hosp., Philadelphia, Pa.

LAWRENCE, Van Sheerin	U. of Minnesota	MB 1951	St. Joseph's Hospital, St. Paul, Minn.
LEE, Will Win	U. of Minnesota	MB 1951	Ancker Hospital, St. Paul, Minn.
LEVERSEE, John H.	U. of Minnesota	MB 1951	Harborview King Co. Hosp., Seattle, Wash.
LILLEHEI, Richard Carlton	U. of Minnesota	MB 1951	Mpls. Gen. Hospital, Minneapolis, Minn.
LOFGREN, Eric Paul	U. of Illinois	MD 1944	102 110 2nd Ave. S.W., Rochester, Minn.
LUND, Anthony James	U. of Illinois	MD 1950	Starekow Clinic, Thief River Falls, Minn.
LYONS, Henry Richard	Georgetown U.	MD 1945	102 110 2nd Ave. S.W., Rochester, Minn.
MacDONALD, William John	U. of Alberta	MD 1945	102 110 2nd Ave. S.W., Rochester, Minn.
McKELVIE, Allan McNeill	U. of Glasgow, Scotland	MB Ch. B. 1939	1801 K St. N.W., Washington, D. C.
McLINDEN, John Warren	U. of Minnesota	MB 1951	Santa Clara Co., Hosp., San Jose, Calif.
MESSENHEIMER, Myron G.	U. of Kansas	MD 1939	Student Health Service, University of Minn., Minneapolis, Minn.
MIDBOE, Gilbert Theodor	U. of Minnesota	MB 1951	Ancker Hospital, St. Paul, Minn.
MIDDLEBROOK, John Edward	U. of Minnesota	MB 1951	San Francisco City Hosp., San Francisco, Calif.
MILLER, George Emerson	U. of Alberta, Can.	MD 1945	102 110 2nd Ave. S.W., Rochester, Minn.
MILLER, Herman	U. of Minnesota	MB 1951	Ancker Hospital, St. Paul, Minn.
MITCHELL, Russell Harry	U. of Minnesota	MB 1951	Gorgas Hospital, Ancon, Panama Canal
MORTENSON, Howard Odell	U. of Minnesota	MB 1951	Tripler Army Hospital, Moanalua, Oahu, T. H.
NEIBERGS, Pauls	U. of Latvia Riga, Latvia	"Physician" 11-5-38	St. Joseph's Hospital, St. Paul, Minn.
NORQUIST, Stanley Roy	U. of Minnesota	MB 1951	814 4th St. S.E., Minneapolis, Minn.
OGDEN, Harry Sweet	Northwestern U.	MB 1948 MD 1949	University of Minn. Hospitals, Dept. Rad., Minneapolis, Minn.
O'NEILL, Harold Patrick	U. of Minnesota	MB 1951	Rochester Gen. Hosp., Rochester, N. Y.
OWEN, William Vaughan	U. of Minnesota	MB 1951	Rochester Gen. Hosp., Rochester, N. Y.
PETTERSEN, George Richard	U. of Minnesota	MB 1951	2123-A Folwell St., St. Paul, Minn.
PEW, Wilmer Laurence	U. of Minnesota	MB 1951	U. of M. Hospitals, Minneapolis, Minn.
POLLAK, Kurt	U. of Minnesota	MB 1951	Mpls. Gen. Hospital, Minneapolis, Minn.
PRENTICE, Bruce Culver	U. of Minnesota	MB 1951	2146 Hartford, St. Paul, Minn.
RACER, Harley Joseph	U. of Minnesota	MB 1951	2135-A Folwell St., University Grove E., St. Paul, Minn.
RAJALA, Arnold Ivar	U. of Minnesota	MB 1951	Mpls. Gen. Hospital, Minneapolis, Minn.
RATELLE, Alexander Eugene	U. of Minnesota	MB 1951	St. Joseph's Hospital, St. Paul, Minn.
RAYNER, Ralph Reuben	U. of Minnesota	MB 1951	Mpls. Gen. Hospital, Minneapolis, Minn.
ROBERTS, Byron Harvey	U. of Minnesota	MB 1951	Mpls. Gen. Hospital, Minneapolis, Minn.
ROREM, Joseph Andrew	U. of Minnesota	MB 1951	2081-E Univ. Grove E., St. Paul, Minn.
ROSENBERG, Robert Harris	U. of Minnesota	MB 1951	605 Minor Ave., Seattle, Wash.
SADOFF, Charles Nathan	U. of Minnesota	MB 1951	St. Joseph's Hospital, St. Paul, Minn.
SCHISSEL, Gregory Anthony	Creighton U.	MD 1951	Ancker Hospital, St. Paul, Minn.
SCHNEIDER, Constantine Otto	U. of Oregon	MD 1950	2515 N. Killingsworth, Portland, Ore.
SCHNELL, Frederick Sherman	Marquette U.	MD 1950	East Range Clinic, Virginia, Minn.
SISSON, Norvel Dale	U. of Minnesota	MB 1951	St. Joseph's Hospital, St. Paul, Minn.
SMILEY, Donald Pearce	U. of Chicago	MD 1950	182 Donny De, Huntlee Village, Algiers, Louisiana
SPENCER, Lorin Clair	U. of Minnesota	MB 1951	2701 14th Ave., Oakland, Calif.
SQUIRE, George Varnum	U. of Minnesota	MB 1951	Emanuel Hospital, Portland, Ore.
STANCHFIELD, Robert Franklin	U. of Minnesota	MB 1951	624 8th Ave. S.E., Minneapolis, Minn.
SWENSON, Donald Bjork	U. of Minnesota	MB 1951	Ancker Hospital, St. Paul, Minn.
TEBERG, Annabel Jean	U. of Minnesota	MB 1951	Los Angeles City & County Hospital, Los Angeles, Calif.
VISSCHER, Barbara R.	U. of Minnesota	MB 1951	San Francisco Hosp., San Francisco, Cal.
WEXLER, Harold M.	U. of Minnesota	MB 1951	Michael Reese Hospital, Chicago, Ill.
WEYHRAUCH, William Roger	U. of Minnesota	MB 1951	St. Luke's Hospital, Chicago, Ill.
WHITE, Eugene Leslie	U. of Minnesota	MB 1951	Tripler Army Hospital, APO 438, San Francisco, Calif.
WILD, John Julian	U. Col. Hospital, U. of London, Eng.	MB and Ch. B. 1942	University of Minn., Dept. Elec. Engr., Minneapolis, Minn.
WILSON, Louis James	U. of Minnesota	MB 1951	1292 Maynard Dr., Apt. 333, St. Paul, Minn.
WOHLRABE, Donald Edwin	U. of Minnesota	MB 1951	Phila. Gen. Hospital, Philadelphia, Pa.
WRIGHT, Kermit Joseph	U. of Minnesota	MB 1951	Mpls. Gen. Hospital, Minneapolis, Minn.
YEOMANS, Merrill Brooks	U. of Minnesota	MB 1951	U. Texas Hospital, Galveston, Texas

Reciprocity Candidates

Name	*School*		*Address*
CHAVEZ, Demetrio Armijo	U. of Colorado	MD 1949	2726 E. 50th St., Minneapolis, Minn.
CHILES, Noah Hampton	U. of Louisville	MD 1944	102 110 2nd Ave. S.W., Rochester, Minn.
FEINBERG, Philip	U. of Minnesota	MB 1938 MD 1939	1127 Med. Arts Bldg., Minneapolis, Minn.
HOEFLICH, Bert Joseph	Baylor U.	MD 1946	953 Med. Arts Bldg., Minneapolis, Minn.
KEENAN, Hugh Carter	Marquette U.	MD 1944	102 110 2nd Ave. S.W., Rochester, Minn.
LAW, Harrison Edwin	Col. Phy. & Surg., Columbia U.	MD 1938	Lenont-Peterson Clinic, Virginia, Minn.

MacKINNON, Hector Neil	U. of Alberta	MD 1946	102 110 2nd Ave. S.W., Rochester, Minn.
MINNO, Alexander Mackey	U. of Pittsburgh	MD 1947	102 110 2nd Ave. S.W., Rochester, Minn.
NYWALL, Dean David	U. of Nebraska	MD 1950	Slayton Clinic, Slayton, Minn.
SCHNECK, Jack Irving	Baylor U.	MD 1937	2215 Plymouth Ave. N., Minneapolis, Minn.
SMITH, Roger Carlton	U. of Indiana	MD 1944	102 110 2nd Ave. S.W., Rochester, Minn.
SPRAFKA, Gregory Anthony	St. Louis U.	MD 1950	526 Hamm Bldg., St. Paul, Minn.
TAYLOR, Edwin Addison	Col. of Med. Evang.	MD 1944	102 110 2nd Ave. S.W., Rochester, Minn.
WENTZLER, James Donald	Jefferson U.	MD 1946	102 110 2nd Ave. S.W., Rochester, Minn.
WESTBY, Norval Martin	U. of Nebraska	MD 1950	Madison, Minn.

National Board Candidates

Name	*School*		*Address*
CHRISTENSEN, John Raymond	U. of Iowa	MD 1947	205 W. Second St., Duluth, Minn.
ERICKSON, Robert Lyle	Geo. Washington U.	MD 1950	190 Main St., Caledonia, Minn.
LOVELACE, Jr., Daniel Dudley	Tufts Col.	MD 1934	401-5 First St., Virginia, Minn.
WESTBY, Norval Martin	McGill U.	MD 1949	4107 Woodland Ave., Duluth, Minn.

PHYSICIANS LICENSED NOVEMBER 9, 1951

October 1951 Examination

Name	*School*		*Address*
BARR, James S.	U. of Minnesota	MB 1951	Ancker Hospital, St. Paul, Minn.
BENOIT, Clair Francis	U. of Manitoba, Can.	MD 1943	102 110 2nd Ave. S.W., Rochester, Minn.
GRANT, Suzanne	U. of Minnesota	MB 1949 MD 1950	4715 First Ave. So., Minneapolis, Minn.
HARE, Robert Lewis	U. of Illinois	MD 1949	102 110 2nd Ave. S.W., Rochester, Minn.
HOLT, Prescott Brooks	Columbia U.	MD 1948	102 110 2nd Ave. S.W., Rochester, Minn.
KELLEY, Walter Maynard	U. of Wisconsin	MD 1950	722 E. Second St., Duluth, Minn.
KELLY, Robert Thomas	U. of Minnesota	MB 1951	Mpls. Gen. Hospital, Minneapolis, Minn.
KOHLHASE, Robert Edward	U. of Minnesota	MB 1951	Indianapolis Gen. Hosp., Indianapolis, Ind.
LYONS, James Henry	U. of Chicago (Rush)	MD 1942	Wayne Co. Gen. Hosp., Eloise, Mich.
McQUAY, Norman William	Queen's U., Can.	MD 1944	102 110 2nd Ave. S.W., Rochester, Minn.
MOLENAAR, Robert Eugene	U. of Minnesota	MB 1951	Ancker Hospital, St. Paul, Minn.
MOORES, Kenneth Dabney	U. of Oregon	MD 1950	102 110 2nd Ave. S.W., Rochester, Minn.
NEIBERGS, Lidija Irma	U. of Latvia Riga, Latvia	"Physician" 10-25-39	539 Capitol Blvd., St. Paul, Minn.
RABENS, Robert Allen	U. of Illinois	MD 1950	102 110 2nd Ave. S.W., Rochester, Minn.
ROBINSON, John Gates	U. of Toronto, Can.	MD 1949	102 110 2nd Ave. S.W., Rochester, Minn.
SHEA, Samuel Edward	Georgetown U.	MD 1946	Vet. Adm. Hospital, Minneapolis, Minn.
SIDELL, Franklin DuBois	U. of Chicago	MD 1950	102 110 2nd Ave. S.W., Rochester, Minn.
SMITH, William George	U. of Chicago	MD 1947	102 110 2nd Ave. S.W., Rochester, Minn.
SPANG, William Matthew	Marquette U.	MD 1950	1930 Superior St. W., Duluth, Minn.
STEVENS, Grant Melvin	U. of Kansas	MD 1950	102 110 2nd Ave. S.W., Rochester, Minn.
ULERY, Richard Myron	Johns Hopkins U.	MD 1950	102 110 2nd Ave. S.W., Rochester, Minn.
WHITE, Roy Alan	U. of Washington	MD 1950	102 110 2nd Ave. S.W., Rochester, Minn.
WITTCHOW, Allen William	U. of Wisconsin	MD 1950	102 110 2nd Ave. S.W., Rochester, Minn.

Reciprocity Candidates

Name	*School*		*Address*
ARDAN, Jr., Nicholas Ivan	Med. Col. of Va.	MD 1950	102 110 2nd Ave. S.W., Rochester, Minn.
BABCOCK, Oliver Lemont	Temple U.	MD 1946	Delano, Minn.
BAIRD, Raymond Lynn	U. of Colorado	MD 1950	287 N. Smith Ave., St. Paul, Minn.
BELL, Jr., Harry Manning	Syracuse U.	MD 1944	1201 E. Third St., Duluth, Minn.
BRZICA, Stephen Marion	U. of Nebraska	MD 1950	Worthington, Minn.
BURT, Robert Raymond	U. of Oregon	MD 1944	102 110 2nd Ave. S.W., Rochester, Minn.
CLARK, Doyce McIntire	Baylor U.	MD 1938	102 110 2nd Ave. S.W., Rochester, Minn.
COFER, Jr., Vernon Lonsdale	Med. Col. of Va.	MD 1948	102 110 2nd Ave. S.W., Rochester, Minn.
DOMZALSKI, Casimir Anthony	U. of Michigan	MD 1945	102 110 2nd Ave. S.W., Rochester, Minn.
DUNN, Jr., Jack	U. of Texas	MD 1948	102 110 2nd Ave. S.W., Rochester, Minn.
ERWIN, Paul Dair	U. of Oklahoma	MD 1946	U. of M. Hospitals, Minneapolis, Minn.
GATCHELL, Frank Gaffney	U. of Oklahoma	MD 1948	102 110 2nd Ave. S.W., Rochester, Minn.
GILLEY, Edwin Wayne	U. of Virginia	MD 1948	102 110 2nd Ave. S.W., Rochester, Minn.
GREEN, Jr., Robert Castleman	U. of Virginia	MD 1947	102 110 2nd Ave. S.W., Rochester, Minn.
KOPECKY, Frank Anthony	Creighton U.	MD 1948	102 110 2nd Ave. S.W., Rochester, Minn.
KROLL, Harry Gardner	U. of Chicago	MD 1950	102 110 2nd Ave. S.W., Rochester, Minn.
LESCOE, Richard John	U. of Pittsburgh	MD 1949	102 110 2nd Ave. S.W., Rochester, Minn.
LITZOW, Thaddeus Joseph	Marquette U.	MD 1949	102 110 2nd Ave. S.W., Rochester, Minn.
MEARS, Thomas Wakefield	Geo. Washington U.	MD 1946	102 110 2nd Ave. S.W., Rochester, Minn.

O'KEEFE, Jr., Mathew E.	Med. Col. of Va.	MD 1950	102 110 2nd Ave. S.W., Rochester, Minn.
OXFORD, Marvin Bradfield	U. of Texas	MD 1942	102 110 2nd Ave. S.W., Rochester, Minn.
PETTET, John Richard	U. of So. Calif.	MD 1949	102 110 2nd Ave. S.W., Rochester, Minn.
POWELSON, Myron Hopkins	U. of Louisville	MD 1949	102 110 2nd Ave. S.W., Rochester, Minn.
SLOSS, Pierce Thomas	U. of Iowa	MD 1947	102 110 2nd Ave. S.W., Rochester, Minn.
WEAVER, Rex Winfield	U. of Nebraska	MD 1950	102 110 2nd Ave. S.W., Rochester, Minn.
WISE, Jr., Fred Eugene	Med. Col. of Va.	MD 1945	102 110 2nd Ave. S.W., Rochester, Minn.

National Board Candidates

Name	*School*		*Address*
BLANK, Leo	Med. Col. of Va.	MD 1949	University of Minn., Dept. Rad., Minneapolis Minn.
CARUOLO, Joseph Emilio	Tufts Med. Col.	MD 1946	102 110 2nd Ave. S.W., Rochester, Minn.
CONWAY, Robert F.	U. of Minnesota	MB 1948 MD 1949	628 Elm St., St. Peter, Minn.
GOSSEL, John Dietrich	New York Med. Col.	MD 1950	102 110 2nd Ave. S.W., Rochester, Minn.
HALPIN, Mary Aiden	Tufts Med. Col.	MD 1950	102 110 2nd Ave. S.W., Rochester, Minn.
KILBY, Ralph Allen	U. of Buffalo	MD 1948	102 110 2nd Ave. S.W., Rochester, Minn.
KUHN, Arthur J.	U. of Cincinnati	MD 1949	102 110 2nd Ave. S.W., Rochester, Minn.
LASSETTER, Edgar Lovelace	McGill U., Can.	MD 1948	102 110 2nd Ave. S.W., Rochester, Minn.
LEV, Ralph	Jefferson Med. Col.	MD 1948	102 110 2nd Ave. S.W., Rochester, Minn.
MEDOFF, Alvin Sherwood	N. Y. Med. Col.	MD 1948	102 110 2nd Ave. S.W., Rochester, Minn.
PARK, Wilford Edison	U. of Toronto, Can.	MB 1927 MD 1940	1804 Humboldt Ave. So., Minneapolis,
PETERS, Jr., William Francis	Temple U.	MD 1949	102 110 2nd Ave. S.W., Rochester, Minn.
RAWLS, Thompson Townsend	Harvard U.	MD 1949	102 110 2nd Ave. S.W., Rochester, Minn.
SMITH, Ballard Franklin	U. of Buffalo	MD 1946	102 110 2nd Ave. S.W., Rochester, Minn.
SPELLMAN, Mitchell Wright	Howard U.	MD 1944	University of Minn., Dept. Surgery, Minneapolis, Minn.
STRUTHERS, Alfred Morgan	Syracuse U.	MD 1946	102 110 2nd Ave. S.W., Rochester, Minn.
TUERK, Milton	New York U.	MD 1950	102 110 2nd Ave. S.W., Rochester, Minn.
WEISMAN, Philip Albert	U. of Cincinnati	MD 1945	102 110 2nd Ave. S.W., Rochester, Minn.
WHITE, Philip Taylor	Geo. Washington U.	MD 1946	102 110 2nd Ave. S.W., Rochester, Minn.
WILSON, Jr., Leo Hughes	Duke U.	MD 1947	102 110 2nd Ave. S.W., Rochester, Minn.
WINKELMANN, Richard Knisely	Marquette U.	MD 1948	102 110 2nd Ave. S.W., Rochester, Minn.

SUMMARY OF A MESSAGE FROM THE BOARD OF TRUSTEES OF THE AMERICAN MEDICAL ASSOCIATION

D. W. LARSON, M.D.

Bismarck, North Dakota

Dr. Larson brought greetings from the Board of Trustees of the American Medical Association. He reported that the National Education Campaign accomplished much, concluding that this is the first time in the public relations advertising history, that a profession, business or industry has been successful in rallying nationwide advertising support; that this support endorsing medicine's fight against socialized medicine did not come from big business and reactionary forces, but from small advertisers on main street; that there were a large number of tie-in ads sponsored by state and county societies whose members had already contributed to the campaign; and that the results of the election show the impact of the doctors' influence on the local level.

Dr. Larson felt that the problems of immediate concern to the Board of Trustees are federal aid to medical education and clarification of the policy for public health units.

He said that the American Medical Association is opposed to federal aid to medical education because there is a lack of evidence that federal aid is the only solution, because provision of federal aid would very likely lead to federal controls, because it is believed that it would reduce the incentive to support schools on local levels, and because increased federal expenditures for federal aid to medical education would perpetuate higher taxes and the cycle would perpetuate itself. He asked, "If medical schools are subsidized, would they be dropped when peace comes? How will controls be avoided?"

Dr. Larson urged clarification of the AMA's stand on public health units. He advocated a clearer definition of public health and the practice of medicine. He said that not enough doctors belong to and are active in the Public Health organizations.

Dr. Larson declared that the American Medical Association belongs to you and to me—it is not only at 535 North Dearborn in Chicago. Citing it as a federacy of constituent associations, Dr. Larson explained that the House of Delegates is the legislative body, with the Board of Trustees handling the business side. He told doctors that it is very important to the House of Delegates that you send good men who will deliberate well on these things.

He urged frequent re-examination of the 12-point program of the American Medical Association. We, as doctors in America, he stated, will legislate and operate AMA as we want it done.

Dr. Larson asked, "Are we in tune with the social revolution that is going on in this country?" Any changes that we make in the future must be made with this policy in mind—the continuance of the free practice of medicine, he concluded.

Dr. Larson is a member of the Board of Trustees of the American Medical Association.

Minneapolis Surgical Society

Meeting of March 8, 1951

The President, HARVEY NELSON, M.D., in the Chair

A MODIFIED AMPUTATION OF THE THIGH—LATERO-MEDIAL FLAP

VIRGIL J. P. LUNDQUIST, M.D.
Minneapolis, Minnesota

Since amputation is known to be one of the oldest of surgical procedures, it is fitting that it be reconsidered by surgeons at times. Even though amputation may be overshadowed by some of the more complicated of modern surgical procedures, any new concept in its performance is worthy of consideration.

It has been demonstrated by archeological evidence that amputation was most likely known and practiced in the Neolithic Period of man's development. Stone and bone knives and saws of this period have been recovered which could well have been used for amputating extremities. Hippocrates, in the latter part of the 5th Cenutry B.C. recommended that gangrenous limbs be amputated through the upper area of gangrene. Celsus, at the beginning of the Christian Era, during the reign of Augustus Caesar, was one of the first to practice amputation through sound tissue above the area of gangrene.

During these early amputations, hemorrhage was of necessity one of the most deterring factors in carrying out the procedure. Celsus did advocate the ligation of vessels but the technique of ligature was not universally accepted until it was again reintroduced by the French Army Surgeon, Paré, in the 16th century. Prior to this time the management of hemorrhage was by cautery, burning oil, and pressure dressings.

This remained the point of progress in the field of amputation until the introduction of methods to obtain better amputation stumps. Lowdham was one of the first on record to advocate the use of skin flaps which were fashioned at the time of operation to serve as protection for the amputation stump. With the introduction of skin flaps, several names appear on the scene of amputation development among which may be mentioned those of Hey, Langenbeck, Liston, Teale, and Syme. A discussion of amputation development would not be complete without at least mention of the names of Baron Larrey, Napoleon's great Army Surgeon, and G. J. Guthrie of the British Medical Corps. Larrey made a tremendous contribution to surgery when he introduced his technique of debridement not unlike that practiced today. With the development of chemotherapy and antibiotics, amputation took on a new role. There has been a commendable tendency to conservatism. The guillotine method of amputation, so often used in the past, has been relegated to a position of lesser importance—and rightly so. Nevertheless, there are still real indications for its use.

Guillotine Amputation

It is to a modified method of guillotine amputation that this presentation is directed. This modification is one which has been employed at the U. S. Veterans Administration Hospital in Minneapolis, Minnesota. In brief, it is a modification of the method wherein lateral and medial flaps of skin, fascia and muscle are retained to enable easier and more rapid healing of the stump and to eliminate to a large extent the secondary operative procedures so often necessary in the revision of the classical guillotine stump. With permission we can give the concept a name—The Latero-Medial Flap Amputation. Four aspects of the problem have been chosen to facilitate the presentation of this material. These will be discussed under the following: (1) indications; (2) technique employed; (3) advantages of the method; and (4) a statistical analysis.

1. *Indications.*—It may be mentioned that amputation is indicated to save life, to control the spread of infection, to combat the spread of disease, and to remove useless extremities.

It is extremely difficult to advance general rules for the employment of any surgical procedure. Without mention, it is understood that individual cases require individual considerations. Gangrene, however, is accepted as a major indication for amputation. It is perhaps the most frequent indication for amputation in the civilian practice of surgery. Grangrene has been the outstanding indication for the procedure herein described. To facilitate its consideration there has been a subdivision to include the peripheral vascular disorders predisposing to the gangrene, namely—arteriosclerosis obliterans—without diabetes and with diabetes; thromboangiitis obliterans (Buerger's disease); acute thrombosis; and acute embolism.

If we consider for a moment the pathogenesis of gangrene, the indication for amputation is self-evident in an arteriosclerotic obliterating process. Since the

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blood supply is in the form of end arteries to the terminal parts and, in gangrene, thrombosis of these vessels occurs, there is little likelihood of there being adequate collateral supply as the collateral vessels are similarly involved in the generalized sclerotic process. The gangrene which follows is an attempt by "Nature" to slough the tissue which has been deprived of its blood supply. Sloughing is accomplished by an inflammatory process of destruction through the muscle, tendon, bone, subcutaneous tissue, and skin. There must be a good blood supply to the proximal tissues to effect this separation. In the presence of diseased vessels in the adjacent tissues, this good blood supply is lacking, the inflammatory reaction extends further proximalward, further thrombosis occurs, and the gangrene spreads. The products of dead and dying tissue resulting from this anemic aseptic necrosis are absorbed into the circulation and may lead to irreversible changes in an already aged and damaged myocardium or renal parenchyma. This progression of the process of the gangrene plus the added ever-present specter of infection with gas bacillus, tetanus, or other septic organism often casts amputation in a life-saving role.

This leads us to the second point under indication for the latero-medial flap procedure—when a guillotine type of amputation is desired. This implies the condition encountered in the patient debilitated by chronic disease, a patient in a precarious state due to an underlying cardiovascular or renal disease, often under intensive medical management for this underlying disease when the acute episode of thrombosis or embolism strikes, and as a result a patient who is an extremely poor surgical risk. For these reasons a procedure which can be done rapidly, which does not consume time in creating flaps and thereby does not expose the patient to the added risks of a prolonged operation and anesthesia, is definitely indicated. Then, further, the guillotine type of open or semi-open amputation may be indicated in the case of an infected extremity. When there is a question as to whether the infection is under control or not and when the amputation is done as an adjunct to the control of the infection or the underlying disease as in the case of diabetic gangrene, open amputation is of value. There is also the question which may arise as to whether the chosen level is one of viability and whether a definitive procedure at this level will be successful. Often with these presenting circumstances a guillotine open type of amputation is to be commended.

For our last consideration under indications, it has been chosen to restrict this procedure to the amputations at low thigh level. The type of scar which results as it does running anteroposteriorly around the stump does not provide for a good stump in the lower leg. The retraction of the scar may prove troublesome between the two bones of the lower leg, and this may lead to a very unsatisfactory stump. The maximum length of the stump in the thigh amputation is to be recommended for a better functioning stump and better wearing of a prosthesis. Since the real indication for this procedure is in peripheral vascular disorders and since these most often lead to a lower extremity amputation, it is thought that the low thigh level should be indicated as the elected site of amputation when this procedure is employed. It is further known that when the low thigh level is elected for this procedure, a satisfactory amputation stump does result.

2. *Technique Employed.*—As a preliminary to presenting points in the actual technique peculiar to this procedure, it may be stated that the patient is prepared, and draped in the usual manner. The extremity is sterilly wrapped so that it can be manipulated during the operation by the surgeon in the operative field. As to the choice of anesthetic agent, Baird's solution (sodium pentothal and tubocurare) has been employed. There is nothing in the method itself to preclude the use of any one anesthetic agent. A tourniquet has not been used since this amputation has been done in patients with an already compromised peripheral circulation.

This has been done as a guillotine type of procedure. The long amputation knife is the instrument used. The flaps are cut from the inside outwardly in two bold strokes. The amputation knife is thrust into the thigh at a selected point on the anterior surface of the thigh in the midline. This point is about 3 to 4 inches above the knee joint. The knife is advanced to the femur and it is then forced laterally hugging the lateral surface of the femur until it passes the extent of the bone. An attempt is then made to have the tip of the knife emerge through the skin of the posterior thigh in the midline. It is thrust completely through the thigh. The lateral flap of muscle, fascia, subcutaneous tissue and skin is then fashioned by drawing the knife outwardly and downward toward the knee joint. This skirts the flare of the femur and is made by passing the knife outwardly at approximately a 45 degree angle. A similar type of cut is then made on the medial side of the thigh attempting to have the two flaps join at the apex on both the anterior and the posterior surface of the thigh. The hemorrhage is of course controlled following the two strokes. The larger vessels are usually transected with the medial cut. The hemorrhage is usually not profuse since these patients have a deficient peripheral circulation and it is not uncommon to find the main arterial channels completely obliterated.

The bone is divided at the apex of the incision. This is done by incising the periosteum circularly around the shaft of the femur and making the saw cut in the bone in the same line as the periosteum. By not stripping the periosteum proximalward it is thought that the formation of ring sequestra is avoided.

In the control of the hemorrhage and the achievement of hemostasis, chromic catgut is used as ligature material. The nerve is transected cleanly, using a razor blade or sharp scalpel blade and if necessary is ligated with a non-absorbable ligature. This is applied in an attempt to avoid cutting through the perineurium. This may help in the prevention of the development of painful neuromata.

The point of modification of the guillotine principle then arises. After the tissues have been divided and their appearance noted, one is in a better position to evaluate their viability. If it appears that the blood supply is fully adequate and there is no question as to the viability, one may elect to close the flaps at least partially. This is one of the real advantages of the procedure. The flaps may be closed beginning at the anterior aspect without compromising the drainage. The cleft created by the lateral and medial flaps leaves a very adequate drainage site posteriorly. This is in the ideal position for maximum dependent drainage with the patient lying in bed on his back. In the suture of the flaps it is only necessary to approximate the skin with a few silk sutures placed interruptedly carrying the closure as far posteriorly as is elected. If the closure is quite complete a drain is brought out at the posterior angle. Occasionally it is necessary to trim the skin edge posteriorly at the apex if the two cuts found the knife tip leaving a bridge of skin between them.

The dressing which has been used has been one fashioned from stockinette. A voluminous gauze dressing is applied to the stump. If it has been elected to leave the flaps open, vaseline gauze strips are placed next to the raw surface. Following the gauze dressing, the stockinette of the proper size is rolled down over the dressing on the end of the stump. ACE adherent is then painted on over the stockinette to cause it to stick to the skin of the thigh. The stockinette is then secured by wrapping the thigh with an elastic bandage. This is wrapped down over the end of the stump and carried out for a short distance on the stockinette to cause the entire stump to assume a cone shape. A piece of rope is tied to the redundant portion of the stockinette and is attached to a 1 pound weight and brought over the end of the patient's bed on a pulley. This traction is maintained for a few days to maintain the stump in good position preventing contracture, to prevent the stump from becoming edematous and painful, and to prevent too marked retraction of the flaps from occurring.

3. *Advantages of the Method.*—To re-emphasize what are thought to be some of the advantages of this amputation modification, it should be mentioned that this is an amputation of the guillotine type and thus has the advantages incident to such a method. It can be performed very quickly thus eliminating the need for a prolonged procedure in an already debilitated patient. It can be modified to take advantage of the conditions encountered. If there is adequate viability and no contraindication, closure of the flaps may be elected even to primary closure with drainage at the posterior angle. This is probably one of the greatest advantages—the creation of a very adequate drainage channel at the most dependent posterior angle.

A further real advantage is attained in that it avoids a secondary operation to obtain a satisfactory stump in a high percentage of cases. The plastic closure of the classical guillotine stump is well known. The stump obtained with this procedure is very satisfactory even when there is no attempt made to close it at the initial operation. In the majority of cases there is no need for revision of the stump.

With this method, a very adequate stump is obtained for the wearing of the proper prosthesis. Since these patients have inadequate peripheral circulation, the indicated prosthesis for them is the ischial weight-bearing type. It is not recommended that these patients bear weight on the end of their stumps with the poor peripheral circulation they possess. The presence of the scar running anteroposteriorly around the end of the stump is therefore not a disadvantage. Several patients having had this type of amputation have at the present time satisfactorily worn their ischial weight-bearing prosthesis with no stump difficulties for periods up to three years.

4. *Statistical Analysis.*—During the period 1947 to 1950 this method of amputation was employed for twenty-three patients at the USVA Hospital at Minneapolis, Minnesota. Twenty-four amputations were done, in one instance a bilateral amputation was performed. In Table I, the conditions for which the amputations were done are listed.

TABLE I.

Diagnosis	Number of Cases
Arteriosclerosis obliterans	12
without Diabetes	6
with Diabetes	2
Thromboangiitis obliterans	7
Acute Thrombosis	4
Acute Embolism	
	Total 31

To clarify the total figure of thirty-one, it must be mentioned that six cases included in the arteriosclerosis obliterans group and 1 case in the thromboangiitis obliterans group are also classified with the acute thromboses. These were cases in which an intercurrent acute thrombosis occurred in the course of their underlying condition. Thus the original total of twenty-four cases is verified.

In Table II will be found an analysis of the results of healing in the cases under consideration.

TABLE II.

	Primary Healing	Prompt Healing	Delayed Healing	Requiring Revision
Arteriosclerosis obliterans:				
without Diabetes	5	5	1	1
with Diabetes	4		1	1
Thromboangiitis obliterans			1	1
Acute Thrombosis	3	3	1	
Acute Embolism (1 patient expired within 24 hours)	1		1	1
Total	13	8	5	4
Percentage	43% (10)	22% (5)	17% (4)	17%

In Table II, in arriving at an expression of the totals on a percentage basis, it was necessary to correct for the duplicated cases in the acute thrombosis group. The figures in the parentheses are the corrected totals and are used to arrive at the percentage figure. The patient who expired within 24 hours of operation is not in-

(Continued on Page 1224)

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SEARLE RESEARCH IN THE SERVICE OF MEDICINE

◆ Reports and Announcements ◆

AMERICAN ACADEMY OF GENERAL PRACTICE MINNESOTA CHAPTER

The Minnesota Chapter of the American Academy of General Practice held its first postgraduate clinical session in Saint Paul on November 14. Physicians from throughout the nation were guest lecturers at the one-day meeting.

President of the state chapter is Dr. Albert E. Ritt, Saint Paul.

AMERICAN COLLEGE OF SURGEONS

At a meeting of the board of regents of the American College of Surgeons held at the Fairmont Hotel in San Francisco on November 9, Dr. Evarts A. Graham of St. Louis was appointed to succeed Dr. Arthur W. Allen of Boston as chairman. Dr. Graham is emeritus professor of surgery, Washington University School of Medicine and emeritus surgeon-in-chief, Barnes and St. Louis Children's Hospital. Dr. Graham has been a member of the board of regents since 1940.

Among the new fellows initiated at the San Francisco meeting were the following: Dr. Frank J. Ankner, Dr. Milton E. Baker, Dr. Norman B. Bloom, Dr. David Gaviser, Dr. Walter Lees Hoffman, Dr. Vernon L. Lindberg, Dr. Mancel T. Mitchell, Dr. Jacob H. Strickler, all of Minneapolis; Dr. Edward W. Sickels, Saint Paul; Dr. Oliver Howard Beahrs, Dr. Allan L. Haynes, Dr. John C. Ivins, Dr. Joseph M. Janes, all of Rochester; Dr. Wilford J. Dewesse, Bemidji; and Dr. William O. Finkelnburg, Winona.

FELLOWSHIPS IN INDUSTRIAL MEDICINE

The Institute of Industrial Health of the University of Cincinnati will accept applications for a limited number of fellowships offered to qualified candidates who wish to pursue a graduate course of instruction in preparation for the practice of industrial medicine. Any registered physician who is a graduate of a Class A medical school and who has completed satisfactorily at least two years of training in a hospital accredited by the American Medical Association may apply for a fellowship in the Institute of Industrial Health. (Service in the Armed Forces or private practice may be substituted for one year of training.)

The course of instruction consists of a two-year period of intense training in industrial medicine, followed by one year of practical experience under adequate supervision in industry. Candidates who complete satisfactorily the course of study will be awarded the degree of Doctor of Industrial Medicine.

During the first two years, the stipends for the Fellowship vary, in accordance with the marital status of the individual, from $2,100 to $3,000. In the third year the candidate will be compensated for his service by the industry in which he is completing his training. Requests for additional information should be addressed to the Institute of Industrial Health, College of Medicine, Eden and Bethesda, Cincinnati 19, Ohio.

CHICAGO CLINICAL CONFERENCE

The Clinical Conference, which has been established by the Chicago Medical Society for presentation each spring, offers lectures on many aspects of medicine to keep doctors abreast of the new things being developed from year to year. The next conference will be held March 4, 5, 6 and 7 in the Palmer House, Chicago.

In response to popular demand, there will be an increased number of demonstrations or workshop periods in addition to the regular series of lectures. These demonstrations include presentation of patients, carefully selected scientific movies, and other features interesting from an educational standpoint. The lectures are on subjects of interest to both the general practitioner and the specialist and will be one-half hour in duration. Scientific exhibits will present visually some of the most recent advances in medicine.

The completed program will be available shortly and will be mailed upon request.

SCHOOL OF CYTOLOGY

The Cancer Cytology Center of the Dade County Cancer Institute, an affiliate of the Medical Research Foundation of Dade County in Miami, Florida, has announced its first one-week seminar for physicians to be held at the institute from January 14 to 19, inclusive.

Instruction will be under the supervision of Dr. J. Ernest Ayre, director of the Institute, and its research staff. More than twenty outstanding local and visiting physicians and scientists will compose the faculty. The general course of instruction in cancer diagnosis and cytology will include lectures, demonstrations and symposia covering the various branches of medicine as related to cancer, including clinical, cytological, surgical and histopathological fields.

Interested physicians should direct their inquiries regarding qualifications, registration, fees and other details to the Director of the Dade County Cancer Institute at 1155 North West 14th Street, Miami, Florida. Applications for registration, limited to thirty-five physicians, will be accepted through January 12.

NEW ORLEANS GRADUATE MEDICAL ASSEMBLY

The fifteenth annual meeting of the New Orleans Graduate Medical Assembly will be held March 10 to 13, with headquarters at the Municipal Auditorium in New Orleans.

Eighteen outstanding guest speakers will participate,

(Continued on page 1204)

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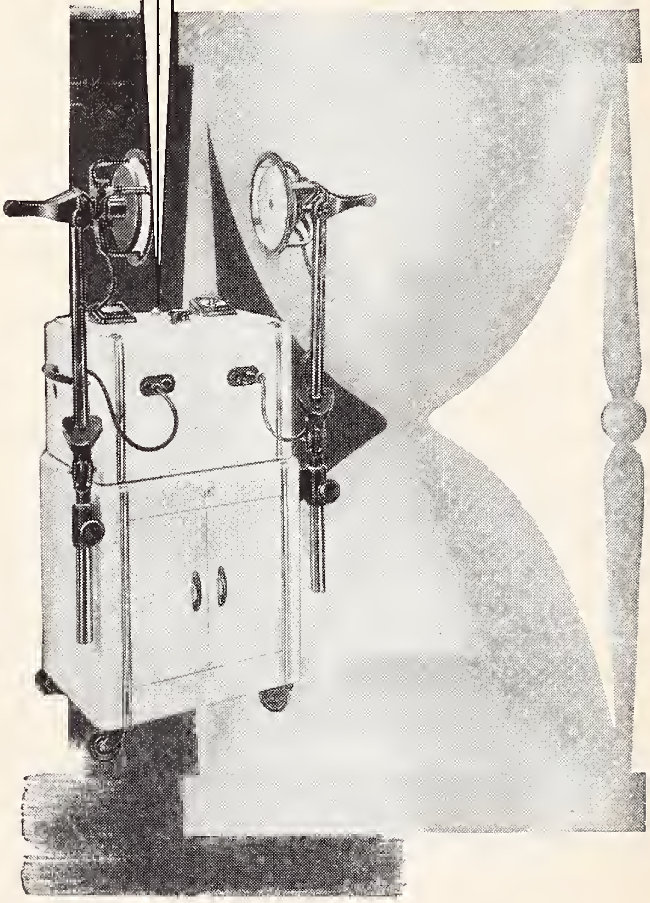

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NEW ORLEANS GRADUATE MEDICAL ASSEMBLY

(Continued from Page 1202)

and their presentations will be of interest to both specialists and general practitioners. In addition, the program will include symposia on "Resuscitation" and "Complications of Antibiotic Therapy and Their Management," daily demonstrations of medical and surgical procedures in color television, clinicopathologic conferences, medical motion pictures, over 100 technical exhibits and three round-table luncheons.

The assembly has planned a postclinical tour to follow the 1952 meeting in New Orleans. On March 15 a party composed of doctors and their families will leave by plane for Merida, Yucatan, Mexico. The itinerary also includes Mexico City, Cuernavaca, Taxco and Acapulco in addition to other sightseeing. Arrangements have been made for medical programs and visits to hospitals in Merida City. The group will return to New Orleans on Saturday, March 29.

Details of the New Orleans meeting and the postclinical tour are available at the office of the assembly, Room 103, 1430 Tulane Avenue, New Orleans 12, Louisiana.

U. S. PUBLIC HEALTH SERVICE

A competitive examination for appointment as medical officer to the Regular Corps of the U. S. Public Health Service will be held on February 5, 6 and 7 at various points in the country. Applications must be received not later than January 2.

Cook County Graduate School of Medicine
ANNOUNCES CONTINUOUS COURSES
SURGERY—Intensive Course in Surgical Technic, two weeks, starting January 21, February 4, February 18.
Surgical Technic, Surgical Anatomy and Clinical Surgery, four weeks, starting March 3, June 2.
Surgical Anatomy and Clinical Surgery, two weeks, starting March 17, June 16.
Surgery of Colon and Rectum, one week, starting March 3, April 7.
Gallbladder Surgery, ten hours, starting April 21.
Basic Principles in General Surgery, two weeks, starting December 10, March 31.
Breast and Thyroid Surgery, one week, starting June 23.
Esophageal Surgery, one week, starting June 23.
Thoracic Surgery, one week, starting June 2.
GYNECOLOGY—Intensive Course, two weeks starting February 18, March 17.
Vaginal Approach to Pelvic Surgery, one week, starting March 3, March 31.
OBSTETRICS—Intensive Course, two weeks, starting March 3, March 31.
MEDICINE—Intensive General Course, two weeks, starting May 5.
Electrocardiography and Heart Disease, two weeks, starting March 17.
Gastroenterology, two weeks, starting May 19.
Hematology, one week, starting June 16.
UROLOGY—Intensive Course, two weeks, starting April 28.
Ten-day Practical Course in Cystoscopy, starting January 7, January 21, and every two weeks.
ROENTGENOLOGY—Two-week Lecture and Clinical Courses each month.
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Appointments will be made in the grades of assistant surgeon and senior assistant surgeon. Appointees to the former grade must have had at least seven years of education and professional experience since graduation from high school, while appointees to the latter grade must have had at least ten years.

Gross pay is the same as that for equivalent rank in the army—entrance pay for an assistant surgeon with dependents, $5,686, and for a senior assistant surgeon, $6,546.

Application forms may be obtained from the Surgeon General, U. S. Public Health Service, Federal Security Agency, Washington 25, D. C. Attention: Division of Commissioned Officers.

MINNESOTA SOCIETY OF NEUROLOGY AND PSYCHIATRY

The regular meeting of the Minnesota Society of Neurology and Psychiatry was held in Saint Paul on November 13. The scientific program was as follows: Dr. Fae Tichy, Minneapolis, appearing by invitation, presented a paper on "Barbiturate Encephalitis." Dr. Maurice Klotz, St. Cloud, presented his inaugural thesis on "Evaluation of Repeated Courses of ECT in Chronic Schizophrenia; Preliminary Report."

RHEUMATIC FEVER CONFERENCE

A three-day symposium on rheumatic fever was held at the University of Minnesota, November 29 to December 1, under the joint sponsorship of the University and the Minnesota Heart Association.

Lectures on various aspects of rheumatic fever were presented by leading specialists from throughout the country. Among the speakers was Dr. Morse J. Shapiro, Los Angeles, formerly of Minneapolis.

CONTINUATION COURSES

Electrocardiography.—The University of Minnesota will present a continuation course for general physicians in electrocardiography, January 21 to 25. Emphasis will be placed on practical experience in reading electrocardiograms. Each registrant will be given an opportunity to interpret approximately 200 tracings. These will later be reviewed and interpreted by the teaching staff. Illustrated lectures will supplement the practical sessions. The faculty for the course are members of the staff of the University of Minnesota Medical School and the Mayo Foundation.

Clinical Neurology.—Dr. Harold G. Wolff, professor of medicine and associate professor of psychiatry, Cornell University Medical College, New York City, will give the annual J. B. Johnston Lecture at 8:15 p.m. on January 30. Dr. Wolff's subject will be "On the Nature of Pain." He will also participate in a continuation course for physicians in clinical neurology which will be presented at the Center for Continuation Study from January 28 to February 9. Other visiting faculty members for the course include Dr. Benjamin Boshes, associate professor of neurology, Northwestern University Medical School, Evanston, Illinois; Dr. H. Houston Merritt, professor of neurology, Columbia University, and director of the Service of Neurology, Neurological Institute, Presbyterian Hospital, New York City; and Dr. Henry G. Schwartz, professor of neurosurgery, Washington University School of Medicine, St. Louis, Missouri. Dr. A. B. Baker, professor and director of the Division of Neurology, is chairman for the course and will be joined by members of the faculty of the University of Minnesota Medical School and the Mayo Foundation.

E. STARR JUDD LECTURE

The nineteenth E. Starr Judd Lecture will be given by Dr. Thomas G. Orr, professor of surgery, University of Kansas, Kansas City, Kansas, on March 20 at 8:15 p.m., in the amphitheater, Owre Hall (formerly Medical Sciences), sponsored by the University of Minnesota Medical School. Dr. Orr's subject is "Some Observations on the Treatment of Carcinoma of the Pancreas."

The late E. Starr Judd, an alumnus of the Medical School of the University of Minnesota, established this annual lectureship in surgery a few years before his death.

LYON-LINCOLN COUNTY SOCIETY

At a meeting of the Lyon-Lincoln County Medical Society at Marshall on November 6, Dr. Kenneth A. Peterson, Marshall, was elected president of the organization. Dr. R. R. Remsberg, Tracy, was named vice president, and Dr. G. Harland Purves, Hendricks, secretary-treasurer.

Principal speaker at the meeting was Dr. H. A. Shaw, Minneapolis, who spoke on eye infections and treatment.

SOUTHWESTERN MINNESOTA MEDICAL ASSOCIATION

The Southwestern Minnesota Medical Association held its annual meeting at Jackson on October 29. Officers elected were Dr. S. S. Chunn, Pipestone, president; Dr. W. B. Wells, Jackson, president-elect, and Dr. O. M. Heiberg, Worthington, secretary. Guest speaker at the meeting was Dr. Tague C. Chisholm, Minneapolis, who discussed acute conditions of the abdomen in children.

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ANNUAL CLINICAL CONFERENCE

CHICAGO MEDICAL SOCIETY

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The CHICAGO MEDICAL SOCIETY ANNUAL CLINICAL CONFERENCE should be a MUST on the calendar of every physician. Plan now to attend and make your reservation at the Palmer House.

Woman's Auxiliary

LEGISLATIVE REPORT

Mrs. H. F. R. Plass, Legislative Chairman

The 82nd session of Congress adjourned October 20 and will not convene until January 8, 1952. Generally speaking, the public's health was not harmed by legislation enacted. However, many bills were introduced which will be discussed when Congress convenes in January and efforts must not be relaxed in expressing viewpoints to Congressmen.

S. 337 (The Federal Aid to Medical Schools), which was opposed by the AMA, was blocked for consideration this session by Senator Connolly. It will be reconsidered in January. Auxiliary members who haven't written their Congressmen, should do so now.

H.R. 3298—The Prescription Drug Bill passed in the form approved by the American Medical Association. The Federal Security Administration will *not* decide which drugs are prescription drugs.

The Jenner amendment to the tax bill made it legal for states to publish the names of people receiving public assistance. This has been a hotly contended issue. Oscar Ewing tried to withhold federal funds from the State of Indiana for publishing the names of people receiving aid. Mr. Ewing is not pleased with the Jenner amendment; he feels it is an invasion of privacy. Indiana, on the other hand, proved publication of the list cut down the amount of money needed for assistance programs and was instrumental in detecting fraudulent claims.

Besides the Federal Aid to Medical Schools bill, the following legislation has been introduced for January discussion. Though the American Medical Association has not taken a definite stand on much of it, it opposes the Federal Aid to Medical Schools and any form of compulsory health insurance.

1. S. 2171—Voluntary Health Insurance Bill introduced by Mr. Hill of Alabama and Mr. Aiken of Vermont. This bill is similar to the one introduced in the 81st Congress and the same dangers to the medical profession are inherent in this bill. It is interesting to note that Dr. Bauer, AMA President-elect, has again made a plea for voluntary plans. However, Dr. Bauer pointed out three defects in existing voluntary plans which we must strive to correct. These defects are:

(a) Need of individual insurance as well as group protection.

(b) Provision for people over sixty-five years of age.

(c) Protection against financially catastrophic illness.

2. S. 2337, introduced by Mr. Lehman of New York, would provide for state aid, through use of federal funds, for maternity and infant care for wives and infants, and hospital care for *all* dependents of enlisted members of the Armed forces during the present emergency.

3. S. 2246 introduced by Mr. Lehman would give more aid to the states to extend and improve health services for the prevention and reduction of chronic diseases.

4. S. 2247 introduced by Mr. Lehman would authorize grants to the States to extend and improve diagnostic out-patient health services.

5. S. 2248 introduced by Mr. Lehman would authorize loans to assist in the establishment of clinics or medical groups, designed to afford improved diagnostic services or improve diagnostic or curative services.

6. S. 2301 introduced by Mr. Ives of New York, provides a program of grants and scholarships in the field of nursing.

7. S. 2325 introduced by Mr. Humphrey is to provide and maintain safe and healthful conditions of employment in industries affecting commerce.

8. S.J. Res. 110 introduced by Mr. Murray would provide federal funds for study of the causes and effects of air pollution and its prevention and cure.

9. H.R. 5795 introduced by Mr. Mansfield of Montana would establish a National Multiple Sclerosis Institute within the Public Health Service.

10. H.R. 5853 introduced by Mr. Priest of Tennessee would provide federal funds allotted to state programs wherein health instruction, safety instruction, and physical education is provided in public elementary and secondary schools.

One last report. The Congress overrode the President's veto of a bill to provide free autos to veterans of the Korean war who had lost a leg or arm or are blind.

FALL CONFERENCE TERMED SUCCESS

Approximately eighty doctors' wives registered for the annual Fall Conference and School of Instruction, held October 12 at the Hotel Lowry. After the showing of the film "Here's Health—the American Way," the Auxiliary president, Mrs. F. P. Moersch, Rochester, Minnesota, called the board meeting to order at 10 a.m.

She presented greetings to auxiliary members representing county auxiliary organizations throughout the entire state. She then called for the reading of the Secretary's and Treasurer's reports.

The following committee reports were then presented:

Bulletin—Mrs. John Dordal, Sacred Heart, chairman, urged all members to subscribe, stating that, "an informed auxiliary will be an efficient auxiliary."

Cancer—Mrs. L. P. Howell, Rochester, chairman, presented a résumé of the work done by various national cancer organizations, including details of allocation of funds, urging members to help by (1) making cancer dressings, (2) helping transport older and disabled people to places where they receive their series of x-rays, (3) helping with "local loan closet"—scarce supplies stored and loaned, (4) visiting cancer patients, (5) having alert local chairman to work with county commanders; the doctor's wife can often provide the medical tie-in for moral support in the cancer drive, (6) working with

(Continued on Page 1208)

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(Continued from Page 1206)

their husbands, taking advantage of information seen in professional and lay films available.

Today's Health—Mrs. B. M. Black, Rochester, urged Auxiliary members to subscribe to *Today's Health* and appoint chairmen in each county.

Legislation—Mrs. L. Raymond Scherer, Minneapolis, for Mrs. H. F. R. Plass, Minneapolis, chairman, reported that the committee has sent legislative posters to all members, a letter to all county chairmen with outline of national legislation, legislation chairmen's names reported to the national auxiliary. Future plans include: monthly report in MINNESOTA MEDICINE, close contact with each county chairman on legislative matters. Chairman urged extensive use of the legislative card and advised that members should "never cease to be polite" in voicing opinions on legislation to Congressmen.

Program and Health Education—Mrs. David Halpern, Brewster, chairman, outlined four aims of this committee's work: (1) strive to make every doctor's wife well informed; (2) promote friendship among doctors' wives and families; (3) increase awareness of being informed and the importance of auxiliary work; (4) train each doctor's wife to participate in all local health programs and health projects.

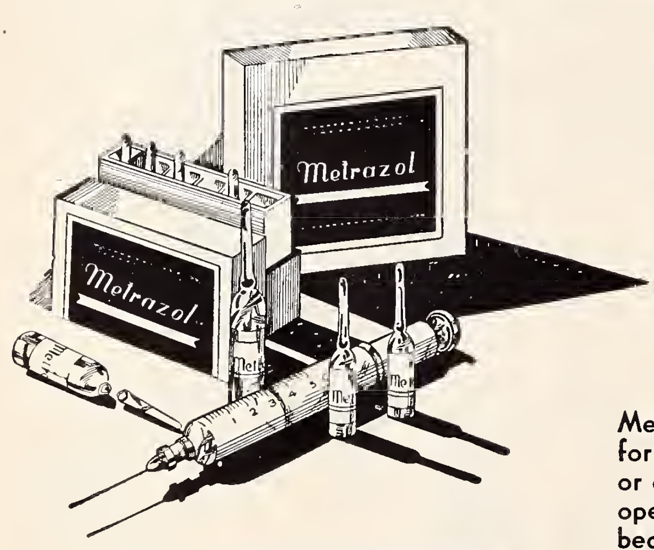
In advising how to organize a program, the chairman suggested the programs be short, interesting and varied, well organized to include possibly a lecture, group discussion, study course or films. Some time should be saved for a social hour. Use the auxiliary pledge. Consult the local medical society before taking on a new project.

Suggestions for program material include: (1) study the American Medical Association, its history, function, bureaus, councils or departments; (2) twelve-point program of the AMA to know what it supports; (3) health council study; (4) study voluntary health insurance plans in the state; (5) health problems in your community, adopt and promote projects; (6) medical legislation, nurse recruitment, *Today's Health,* civil defense; (7) material in *Bulletin,* auxiliary section of MINNESOTA MEDICINE, auxiliary *Newsletter;* (8) have publicity for program; (9) maintain a speaker's bureau; (10) sponsor radio and television programs of the AMA.

Public Relations—Mrs. L. J. Leonard, Minneapolis, chairman, stressed again the importance of being informed on the continuing dangers of socialized medicine. Members should be alert to answer intelligently the questions of lay people. Be aware of health needs in the community and join all community health projects, work closely with the newspapers.

Press and Publicity—Mrs. A. B. Rosenfield, Minneapolis, chairman, read a resolution passed by the press women's organization against socialized medicine.

Health Days—Mrs. W. G. Johanson, St. Paul, chairman, told auxiliary members that the purpose of health days is to bring health information to the community. Health Days are well worth the effort—the follow-up value is great, for it brings an appreciation to the community of the doctor and his work. Health Days can help give an over-all undergirding of health and well being of the people of Minnesota.



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Medical and Surgical Relief—Mrs. W. P. Ritchie, St. Paul, for Mrs. L. G. Culver, St. Paul, chairman, urged counties to appoint committees to collect surplus supplies that accumulate in doctors' offices and help get them to places where shortages exist.

Organization—Mrs. C. L. Sheedy, Austin, president-elect and chairman, reported the organization of Steele County Medical Auxiliary, also reported that thirty out of thirty-two component medical societies now have auxiliaries. "We need the auxiliary and the auxiliary needs us. Not only be organized, but be active."

Emergency Nursing—Mrs. Ivar Sivertsen, Minneapolis, chairman, reported that in 1950 Minnesota's nurse requirement of 1,215 was nearly filled; 1,211 girls were secured for nurses' training. The University of Minnesota has taken on a larger class. The Auxiliary was urged to co-operate with the local district nurse's enrollment chairman and to spread the message of the need for nurses to local girls.

Archives—Mrs. J. M. Neal, St. Paul, chairman, reported that the aim of the Archives Committee is to complete a history file for each county medical auxiliary.

The president then called for nominations for membership on the Nominating Committee. Members chosen were: Mrs. Harold Benjamin, Minneapolis, chairman; Mrs. C. W. Froats, St. Paul; Mrs. H. E. Bakkila, Duluth; Mrs. P. A. Lommen, Austin; Mrs. M. I. Hauge, Clarkfield.

Mrs. Charles W. Waas, immediate past president, voiced her thanks to last year's committee chairmen, officers, regional advisors, all board members, and especially to the Olmsted-Houston-Fillmore-Dodge County Medical Auxiliary for the fine annual meeting in Rochester.

It was decided to hold the midwinter board meeting at the Curtis Hotel, Minneapolis, Wednesday, January 16, 1952. Please note the change in date from that given in the *Newsletter*.

The meeting was adjourned at approximately 12:30 p.m.

Average length of life in the United States has increased to a record high of nearly sixty-eight years, according to Federal Security Administrator Oscar R. Ewing.

The new figure, based on final 1949 vital statistics compiled by the Public Health Service, shows a gain of almost half a year over the average lifetime indicated by 1948 death rates.

White women, on the average, live longer than any other group, outliving white men by more than five years. The average lifetime expected for white women at birth is seventy-one and one-half years, while the average for white men is sixty-five years, eleven months.

Negroes and other non-white groups have a shorter average life—fifty-eight and one-half years for non-white men, and sixty-two years eleven months for non-white women. Although white persons live longer than non-white, the difference has been sharply reduced. In 1900, whites outlived non-whites by an average of about fifteen years, compared to about eight years in 1949.

While the expectation of life at birth has increased by more than twenty years since the turn of the century, this has been almost entirely due to prolonging the lives of persons who formerly would have died in infancy, childhood or young adulthood. This has resulted largely from the control of infectious diseases.

In Memoriam

ALFRED WASHINGTON ADSON

Dr. Alfred W. Adson, chief of the Section on Neurosurgery at the Mayo Clinic until 1946 when he became senior consultant, died on the morning of November 12, 1951, following a heart attack sustained while attending a meeting in Minneapolis the day before.

Dr. Adson was born in Terrill, Iowa, on March 13, 1887. He was born on a farm and got his preliminary education at Terrill before obtaining a B.Sc. degree from the University of Nebraska in 1912. After finishing two years at the medical school of the University of Nebraska, he took the last two years at the University of Pennsylvania medical school, acquiring his M.D. degree in 1914. He immediately came to the Mayo Clinic, on July 1, 1914, as a Fellow in Surgery.

Dr. Adson was assisting Dr. Emil Beckman who at that time was doing the brain surgery of the clinic. When Dr. Beckman died suddenly in 1916, Dr. Adson took over on short notice and operated on the patients scheduled for operations. It has been stated that Sir Berkley Moynihan, the celebrated surgeon of Leeds, England, when asked what during his visit to the United States had impressed him most, replied that seeing a high school boy at the Mayo Clinic doing brain surgery was outstanding.

Dr. Adson was one of the founding members of the Society of Neurological Surgeons. Last September, fifty-nine of seventy-three former Fellows in Neurosurgery, who had been trained under Dr. Adson in the Mayo Clinic and Foundation, met for a reunion at Rochester in honor of their teacher and presented him with a map of the world showing the present locations of his former students—an impressive demonstration of the world-wide influence of this one teacher.

Dr. Adson was one of the first to use sympathectomy in the treatment of vascular diseases and hypertension on any great scale.

Dr. Adson was appointed to the State Board of Medical Examiners in 1929, was repeatedly reappointed, and was a member at the time of his death. He was several times president of the board.

He was president of the Minnesota State Medical Association in 1937 and was awarded the distinguished service medal of the State Association in July, 1947.

Dr. Adson took a great interest in medical organizational affairs and was active in the National Conference on Medical Services which meets yearly in Chicago. He, perhaps more than any other, was responsible for the establishment of an AMA office in Washington. He was also active in the North Central Conference, which was initiated in the thirties in the interests of better public relations, and served one year as president.

It was Dr. Adson who was responsible, with others, for instituting necessary legislation and establishing the Blue Shield in Minnesota.

Dr. Adson was well known nationally. He was seriously considered last June for the office of president-elect of the AMA and would doubtless have been in the running next June had not death overtaken him.

He served two three-year terms on the AMA Council on Medical Service and was chairman of the Council's seven-member Committee on Prepayment Hospital and Medical Service.

Not only was Dr. Adson an able surgeon, he was a national leader of men. He had ability as a speaker and could array and express his thoughts in logical sequence. His record was a good example of the strenuous life. He applied all his energy to anything he attempted, whether at work or play.

Dr. Adson is survived by his wife, Lora Smith; a daughter, Mrs. W. E. Wellman of Rochester, and a son, Lt. Martin Adson. Another son, William, died in World War II.

CHARLES F. ANDERSON

Mr. Charles F. Anderson, well known to physicians of Minnesota and the Twin Cities especially, suffered a heart attack in the Lowry Medical Arts building in Saint Paul about 6 p.m. on November 16, 1951, and died soon thereafter.

Charlie Anderson, president of the C. F. Anderson Co., Inc. of Minneapolis, had been in the medical supplies field most of his sixty-nine years, having been with Noyes Brothers and Cutler before he founded his own firm in 1919. His cheery disposition and willingness to accommodate gave him entré to physicians' offices everywhere, and he will be greatly missed.

A sister, Mrs. Fred Johnson, died less than twenty-four hours before in a fire which partially destroyed her home in Saint Paul.

He is survived by his widow, a son David of Minneapolis, and two sisters, Hilda and Mrs. Florence Raschke, both of Saint Paul.

JAMES BLAKE

Dr. James Blake, for nearly fifty years a general practioner at Hopkins, Minnesota, died October 28, 1951, at the age of eighty-five.

Dr. Blake was born in Ontario April 2, 1866. After completing grade school at the age of sixteen, he came to the states with the idea in the back of his mind of becoming a doctor. Not satisfied with available jobs in Chicago, he rode a freight train to Minnesota and obtained a job as a farm hand at Graceville, Minnesota. After spending three years in saw mills of Wisconsin and Michigan, he returned to Minnesota and got a job in a pulp mill at Little Falls. Having saved some money, he enrolled at Mankato normal school and completed the four years' course in two years. This encouraged him to take up the study of medicine at the University of

(Continued on Page 1212)

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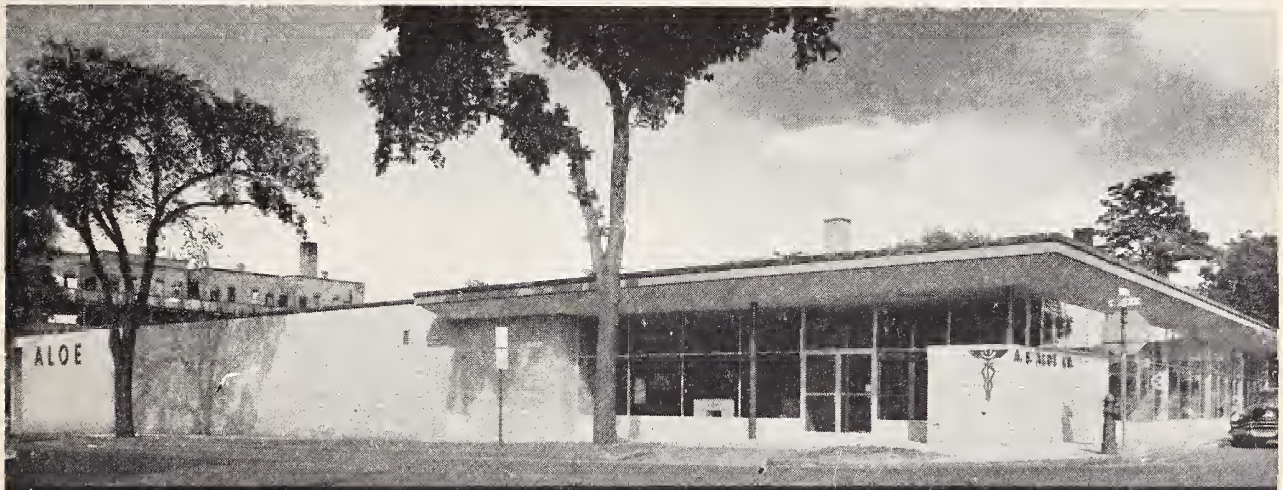

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Dermatology
J. Arnold Bargen, M.D., Rochester, Minn.
Gastroenterology
Ralph A. Reis, M.D., Chicago, Ill.
Gynecology
Charles A. Doan, M.D., Columbus, Ohio
Medicine
John P. Merrill, M.D., Boston, Mass.
Medicine
William Parson, M.D., Charlottesville, Va.
Medicine
Jacob E. Finesinger, M.D., Baltimore, Md.
Neuropsychiatry
Leroy A. Calkins, M.D., Kansas City, Kan.
Obstetrics
John H. Dunnington, M.D., New York, N. Y.
Ophthalmology
Edward L. Compere, M.D., Chicago, Ill.
Orthopedic Surgery
Hayes Martin, M.D., New York, N. Y.
Otolaryngology
Oscar B. Hunter, M.D., Washington, D. C.
Pathology
Margaret M. Nicholson, M.D., Washington, D. C.
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Paul C. Swenson, M.D., Philadelphia, Pa.
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JAMES BLAKE

(Continued from Page 1210)

Minnesota where he graduated in 1901. After interning at Minneapolis General Hospital, he began practice at Hopkins in 1902.

His early practice included emergency surgery, such as appendectomies performed in home kitchens. He estimated that he had assisted in bringing some 5,000 babies into the world, for the most part home deliveries.

Dr. Blake built a clinic building at Hopkins in 1929. His two sons, Drs. Allen and James A. Blake, have been associated with him in recent years. A third son, Paul, is also a physician, and a fourth son, Donald, was killed in army maneuvers in California in World War II. One daughter, Mrs. Charles Adams of Springfield, Illinois, became a trained nurse, and Jeannette of Rapid City, South Dakota, studied to be a medical technician.

Mrs. Blake, in spite of her large family, was very active in the Woman's Auxiliary of the State and American Medical Associations, having served as president, first of the Minnesota State Auxiliary and later of the AMA Auxiliary.

Mrs. Blake died in 1948. In the fall of 1948, a testimonial dinner was tendered Dr. Blake by his many friends and acquiantances and was sponsored by the Veterans of Foreign Wars. Some 200 people attended.

A member of the Hennepin County Medical Society for years, Dr. Blake became a life member of the Minnesota State Medical Association in 1949.

The residents of Hopkins have lost one of its leading citizens in the death of Dr. Blake. His jovial nature and ready wit and, above all, his kindly disposition endeared him to his many friends.

JAMES FRANK CORBETT

Dr. James Frank Corbett of Minneapolis died suddenly November 6, 1951, at the age of seventy-nine.

Dr. Corbett was born at Chippewa Falls, Wisconsin, February 16, 1872. He attended Minneapolis schools and obtained his medical degree from the University of Minnesota in 1896. After interning at Minneapolis City Hospital, he took postgraduate work at Harvard and the University of Michigan.

He began private practice in Minneapolis in 1898 and at the same time was city bacteriologist. In 1907, he became assistant professor of surgical pathology at the University of Minnesota medical school.

Dr. Corbett served as a Lieutenant Colonel in the Medical Corps in World War I and was chief of neurological surgery at the General Hospital at Cape May, New Jersey. He was also chief of surgery at Walter Reed Hospital in Washington.

He was president of Hennepin County Medical Society in 1920 and of the Minnesota State Medical Association in 1923. He was a licentiate of the American Board of Surgery, a member of the American College of Surgeons, the Western Surgical Society, the American Society of Pharmacologists, the Minnesota Neurological Society and the Minnesota Academy of Medicine.

Dr. Corbett has no immediate survivors.

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Of General Interest

The Rockefeller Foundation, in its report for 1950 made public in September, showed that its appropriations amounted to $11,247,964. Of this amount, $2,326,840 was used for public health; $1,240,900 for medical sciences, and the balance for natural and social sciences, the humanities, scientific services and miscellaneous projects. Of the total, 65 per cent was for activities in the United States and 35 per cent in other countries.

* * *

Dr. Sam M. Mackoff has opened an office at 869 Lowry Medical Arts Building, Saint Paul, for the practice of allergy and diseases of the skin.

* * *

Dr. A. F. Giesen, Starbuck, attended the annual clinical congress of the American College of Surgeons at San Francisco during the first week of November.

* * *

A law has been passed by Congress entitling veterans serving on or after June 27, 1950, to the benefits of medical and hospital care, compensation and pensions which were provided for veterans of World War II.

* * *

Dr. Marcus A. Keil, formerly of Mankato, has opened an office at 327 Hyde Building, Albert Lea, for the practice of internal medicine.

* * *

The American Board of Obstetrics and Gynecology announces the election of **Dr. John L. Parks,** Washington, D. C., as a member and director of the board. Dr. Parks succeeds **Dr. Joseph L. Baer,** who has been vice president of the board for over twenty years and who has resigned.

* * *

Leaders from twelve Minnesota communities met at the University of Minnesota, November 15 to 17, to discuss **mental health.** Communities represented were Albert Lea, Anoka, Cloquet, Crookston, Fergus Falls, Little Falls, Mankato, Pelican Rapids, Preston, St. Cloud, Stillwater and Willmar.

First of its kind ever conducted in the state, the conference was attended by lawyers, judges, doctors, nurses, clergymen, social workers and educators from the twelve towns. At the meeting these community leaders were shown how they could co-operate in tackling community mental health problems. Among the speakers, which included psychiatric social workers and mental health consultants, was **Dr. Richard M. Magraw,** neuropsychiatry instructor at the University of Minnesota.

The conference was sponsored by the University, Minnesota State Medical Association, Minnesota Probate Judges' Association and the state departments of education, health and social welfare.

At the annual meeting of the American College of Ophthalmology and Otolaryngology, held at the Palmer House, Chicago, on October 18, **Dr. William L. Benedict,** Rochester, was re-elected executive secretary-treasurer; **Dr. Lawrence R. Bois,** Minneapolis, secretary for home study courses, and **Dr. Erling W. Hansen,** Minneapolis, secretary for public relations.

* * *

Dr. Anthony J. Lund, formerly of Bismarck, North Dakota, has joined the staff of the Starekow Clinic in Thief River Falls. A graduate of the University of Illinois School of Medicine, Dr. Lund served his internship at Ancker Hospital, Saint Paul.

* * *

Dr. Merton A. Johnston has moved from Storden to Nevada, Iowa, where he has taken over the Houston Clinic. Dr. Johnson began practice at Storden shortly after World War II.

* * *

Principal speaker at the annual meeting of the Blue Earth County Public Health Association in Mankato on October 17 was **Dr. Robert N. Barr** of the Minnesota Department of Health. In his talk Dr. Barr pointed out that two of the biggest problems in public health today are the care of the aged and the prevention of accidents.

* * *

Dr. Hendrick J. Svien, Rochester, was elected president of the Congress of Neurological Surgeons at a meeting in Memphis, Tennessee, on November 15.

* * *

Among those attending the thirty-seventh annual clinical congress of the American College of Surgeons at San Francisco during the first week of November was **Dr. William A. Black** of New Ulm.

* * *

Dr. Leo J. Rigler, head of the department of radiology and physical medicine at the University of Minnesota, recently returned from a two-month tour of Israel and Iran. He made the trip as a member of a fourteen-man medical mission sent out by the World Health Organization and the Unitarian service committee to explain the latest advances in treating patients and teaching medical students.

Dr. Rigler reported that there is a tremendous contrast between Iran and Israel, including their respective physician-population ratios. Teheran, capital of Iran, has 1,000 physicians for its 1,000,000 population, a ratio about equal to most European cities. The rest of Iran has only 1,500 physicians for a population of more than 15,000,000—one of the lowest ratios in the world.

Israel, on the other hand, has the highest percentage of physicians in the world. However, it

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1951	12,000	250.00	5%	130.00	2.60%

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is facing a future medical problem, since most of its doctors, refugees from Europe, are over fifty years of age. Israel's medical school, which just graduated its first class (fifty-two doctors), must find a way to supply enough new physicians for the future.

In Iran, Teheran's new medical school is now graduating 200 physicians a year. Iran is also organizing five new schools and hopes to turn out soon 1,000 doctors a year to care for its poorly supplied population.

* * *

After three years of practice in Gibbon, **Dr. John H. Glaeser** has closed his office and moved to Minneapolis. He is now taking a three-year course of study in ophthalmology and otolaryngology at the University of Minnesota.

* * *

Dr. Gaylord W. Anderson, director of the University of Minnesota School of Public Health, became president of the American Public Health Association at the organization's meeting in San Francisco on November 1.

* * *

Dr. G. M. A. Fortier, Little Falls, received notice on October 18 that he had been accepted into the International Academy of Proctology.

* * *

A second heart research grant for 1951 has been made to the University of Minnesota by the Minnesota Heart Association. Early in November, **Dr. Thomas J. Dry**, Rochester, chairman of the group's allocations committee, sent a check for $20,000 to **Dr. Harold S. Diehl,** dean of medical sciences at the University. A previous research grant of $25,000 had been made in August.

* * *

Dr. L. M. Eaton, Rochester, was elected vice president of the Central Neuropsychiatric Association at its twenty-seventh annual convention in Minneapolis on October 19 and 20. Dr. Eaton, professor of neurology in the Mayo Foundation, had served as secretary-treasurer of the organization during the previous year.

* * *

At the annual North Central Medical Conference, held November 11 at the Hotel Radisson, Minneapolis, **Dr. Floyd Rogers,** Lincoln, Nebraska, was elected president; **Dr. H. Russell Brown,** Watertown, South Dakota, president-elect, and **R. R. Rosell,** Saint Paul, secretary-treasurer. The meeting was attended by approximately 100 physicians and medical society executives from Wisconsin, North Dakota, South Dakota, Nebraska, Iowa and Minnesota. An unusually stimulating program was presented, with emphasis on the human relations element in public relations.

* * *

Professor C. H. Andrewes, National Institute for Medical Research, University of Leeds, London, England, will give the annual George Chase Christian Cancer Lecture at the University of Minnesota Medical School on the evening of January 15. His subject will be "Current Thoughts on Viruses and Cancer."

* * *

A $7,500 annual grant to the University of Minnesota for tuberculosis research was approved at the annual meeting of the Minnesota Public Health Association on October 22. The fund will be known as the H. Longstreet Taylor grant and is named after the late Dr. Taylor, who was active in the state campaign for prevention of tuberculosis. The grant will be administered by **Dr. J. Arthur Myers,** professor of preventive medicine and public health at the University.

* * *

Dr. Lydia Neibergs has announced her association in the practice of ophthalmology with **Dr. Karl C. Wold,** 1051 Lowry Medical Arts Building, Saint Paul. She is a graduate of the University of Latvia at Riga, where she also took her postgraduate work. Dr. Neibergs has practiced ophthalmology for thirteen years in Latvia and Germany.

* * *

Dr. Joseph E. Christopherson, a former resident of Virginia, now practicing at Mason City, Iowa, was recently certified in the specialty of general surgery by the American Board of Surgery.

* * *

Dr. Albert V. Stoesser, Minneapolis, has been ap-

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pointed a member of the Subcommittee on Allergy of the American Board of Pediatrics.

* * *

Dr. C. W. Rogers, Winona, has been notified of his election as a fellow of the American Academy of Pediatrics.

* * *

At a reorganization meeting of the Virginia Health Council on October 22, **Dr. W. S. Neff**, Virginia, was reappointed chairman of the council. Discussions were held on two proposed projects for the year: the possible establishment of an alcoholic rehabilitation center at Virginia and a vision survey.

* * *

Principal speaker at a meeting of the Red Wing Society for the Mentally Retarded, at Red Wing on October 23, was **Dr. E. J. Engberg**, superintendent of the Faribault Colony for the mentally retarded. Dr. Engberg described the steps taken on admission of a patient to the Faribault Colony to determine the correct program of care to be followed.

* * *

Two natives of Rochester, both of whom completed fellowships at the Mayo Clinic in October, have moved to other cities to practice. **Dr. Robert U. Moersch,** son of Dr. and Mrs. F. P. Moersch, Rochester, is practicing surgery at Clearwater, Florida. **Dr. J. L. Crenshaw, Jr.,** son of Dr. and Mrs. J. L. Crenshaw, Rochester, has moved to Grand Junction, Colorado. He was a fellow in obstetrics and gynecology.

Among the speakers at a mental health meeting for the public at Coleraine on October 18 was **Dr. Henry Hutchinson,** superintendent of the Moose Lake State Hospital. Following a discussion of the common mental ailments and their causes, he conducted a question-and-answer session on the subject.

* * *

The election of four Minneapolis physicians as fellows of the American Academy of Pediatrics was announced on November 7. The four are **Dr. Charles Upton Lowe, Dr. Lloyd Stanley Nelson, Dr. Sidney S. Scherling** and **Dr. Theodore S. Smith.**

* * *

Dr. Norval Westby, Madison, was guest speaker at a meeting of the Madison Business Women's Club on October 29. Dr. Westby discussed some of the more recently developed drugs and described their purposes and uses.

* * *

Dr. Edward L. Tuohy, Duluth, has been elected to a three-year term as trustee of the Greater University Fund, the fund-raising project of the University of Minnesota.

* * *

Dr. Louis L. Flynn, Saint Paul, pediatric psychiatrist, participated in a discussion on "Emotional Health of Our Child" at a meeting of the Minnesota Congress of Parents and Teachers at Saint Paul on October 25. Dr. Flynn talked about the role of parents in children's behavior.

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Dr. P. H. Rockwood, of the Fergus Falls Clinic, attended a postgraduate course in obstetrics and gynecology sponsored by the Chicago Medical Society and held at Northwestern University Medical School from October 22 through 26.

* * *

Fifty-three new fellows in the Mayo Foundation were accepted for fellowship work beginning with the October quarter, it was announced on October 17. Fourteen of the physicians are from other countries.

* * *

Among the honored guests at a thirtieth anniversary luncheon of the Faribault Lions Club on October 18 was **Dr. C. M. Robilliard,** Faribault, a charter member of the organization.

* * *

The fourth annual convention of the Minnesota Association of Nursing Homes was held at Rochester on October 23 and 24, with the principal speakers consisting of **Dr. Jorge A. Lazarte,** of the Rochester State Hospital, and **Dr. N. O. Hanson,** of the Mayo Clinic. Dr. Lazarte spoke at the annual banquet, while Dr. Hanson presented a talk on "Care of the Aged."

* * *

Dr. Owen H. Wangensteen, chairman of the department of surgery at the University of Minnesota, has written a monograph on cancer of the esophagus and stomach to be sent to 190,000 physicians, senior medical students and teachers.

The 112-page booklet is the sixth in a series on early recognition of cancer published by the American Cancer Society. In it are emphasized the practices followed at the University Hospitals, especially in regard to patients who have been operated upon after cancer has spread to lymph nodes.

From November 5 to 9 Dr. Wangensteen, with eight of his University colleagues, attended the thirty-seventh clinical congress of the American College of Surgeons at San Francisco. At the meeting Dr. Wangensteen conducted a daily forum on fundamental surgical problems, designed to bring out new and experimental work in surgery.

* * *

Mantoux tests were given to pupils in the first, fifth, ninth and twelfth grades in all village schools and to all Indian children and school faculty members and employes in Mahnomen County on October 22. Giving the tests were **Dr. E. A. Leggett,** of the Minnesota Department of Health, and **Dr. K. W. Covey** and **Dr. K. A. Danford,** both of Mahnomen.

It is planned to conduct the testing program each year, thereby keeping a check on children periodically during their school career.

* * *

Two brothers, both graduates of the University of Minnesota Medical School and former residents of Rochester, have opened a new medical and surgical clinic at Lake Crystal. They are **Dr. Paul M. Smith,** who has practiced at Lake Crystal since the end of World War II, and **Dr. Harry J. Smith,** who recently completed his internship at Milwaukee General Hospital.

* * *

The twenty-seventh annual reunion of the Alumni Association of the Mayo Foundation was held in Rochester on October 18, 19 and 20, with a total registration of 182 physicians in attendance.

The program for the three-day meeting included surgical clinics, seminars, scientific sessions, award ceremonies and election of new officers.

Co-recipients of awards for meritorious research were **Dr. M. A. Block** and **Dr. F. Henry Ellis,** both fifth-year fellows in surgery, and **Dr. T. B. Fitzpatrick,** now a member of the faculty of the University of Michigan Medical School. A special award of appreciation went to Miss Isabel Farr, Rochester, who recently retired as secretary of the Mayo Foundation after serving in the Foundation office since it opened thirty-six years ago.

The fifth Judd-Plummer Memorial Lecture was delivered, following the award ceremonies, by **Dr. Shields Warren,** professor of pathology at Harvard Medical School and director of the division of biology and medicine of the Atomic Energy Commission. Dr. Warren spoke on "The Biologic Effects of Atomic Radiation."

Officers of the association for the coming year were elected as follows: **Dr. Donald C. Balfour,** honorary president; **Dr. John L. Kleinheksel,** Witchita, Kansas, president; **Dr. Nat H. Copenhaver,** Bristol, Tennessee, first vic president; **Dr. Walter C. MacKenzie,** Edmonton, Canada, second vice president; **Dr. James F. Weir,** Rochester, secretary, and **Dr. David G. Pugh,** Rochester, associate secretary-treasurer.

General chairman for the reunion this year was **Dr. Haddon M. Carryer,** Rochester.

* * *

Dr. A. H. Borgerson, Long Prairie, became a fellow in the International College of Surgeons and was certified in general surgery by the international board of the College at a meeting of the Canadian and United States chapters at Chicago in October.

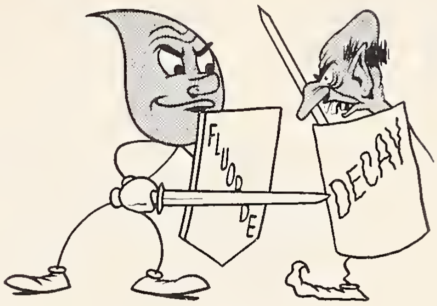
HOSPITAL NEWS

A ground-breaking ceremony on October 28 started construction work on the new $1,050,000 **Bethesda Hospital** to be erected at Crookston. The three-story hospital, which will take about one year to complete, will have a maximum capacity of seventy-seven beds. A fourth floor could be added in the future to house an additional fifty beds.

Speakers at the ground-breaking ceremony included Dr. M. O. Oppegaard, mayor of Crookston; Walter J. Ross, Fisher, president of the hospital board of directors; Dr. J. F. Norman, Crookston, president of the Minnesota State Medical Association, and Dr. D. E. Pohl, director of the hospital medical staff.

When the new hospital is completed, the present

Important News!



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Bethesda Hospital in Crookston will be converted into a rest home.

The new $600,000 **Stevens County Memorial Hospital** was dedicated at Morris on November 18, and the first patients were moved into the fifty-bed hospital the following week.

The dedication ceremonies included talks by medical and hospital representatives and were followed by an open house at the hospital.

* * *

At a meeting of the **Roseau County** Lutheran Benevolent Association on October 22, Dr. D. O. Berge, chairman of the board of trustees, announced that construction of a proposed rest home was expected to start in the spring. He stated that to date the association had received $48 299, with $3,000 in additional pledges, to aid in financing the construction of the building. The association also planned to conduct a fund-raising campaign in the spring.

* * *

At a community dinner in Thief River Falls on October 24, before starting a fund-raising campaign for construction of a $250,000 **Northwestern Hospital** for the area, it was announced that gifts and pledges from the physicians of the medical staff and the hospital's board of directors already totaled more than $67,000.

Dr. Oscar F. Melby, Thief River Falls, honorary chairman of the building fund campaign, stated that the medical staff had pledged a total of $43,500. The board of directors had pledged $23,540.

Principal speaker at the meeting was Dr. Charles A. Haney, hospital advisor from Boston, Massachusetts.

* * *

A tour of the **Lakeside Memorial Hospital** at Pine City was a feature of a meeting of the Pine City Wednesday Study Club during the middle of October. During the tour Dr. E. G. Nethercott discussed the occupational therapy which he has encouraged among the hospital patients. Several patients displayed the products of their handicraft.

* * *

Dedication ceremonies for the new **St. John's Hospital** at Red Lake Falls were held on October 21. Among those who spoke at the dedication were Dr. L. N. Dale, Red Lake Falls, and Dr. J. F. Norman, Crookston.

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Minnesota Blue Shield as of September 30, 1951, attained an enrollment of 508,966 subscribers, a record of over half-a-million participants in the first four years of Blue Shield's operation in Minnesota. This achievement is outstanding and indicates the widespread desire for and interest in voluntary prepaid medical care plans. On a national basis Blue Shield enrollment reached twenty-one million subscribers, further testimony to the public's awareness of the need for this type of protection.

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Mr. Calvin greeting the 500,000th Minnesota Blue Shield subscriber and the 21st millionth Blue Shield subscriber. Pictured left to right: Mr. James R. Wallace, Northern Ordnance plant worker, and the 500,000th Minnesota Blue Shield subscriber; Miss Rosemarie Hart, Northwest Airlines stewardess and the 21st millionth Blue Shield subscriber in the nation, and Mr. Arthur M. Calvin, Executive Director of the Minnesota Blue Cross-Blue Shield Plans.

The increase in claims processed each month by Minnesota Blue Shield is also noteworthy. A total of 10,348 claims were processed during October compared to 6,009 claims in October, 1950. The October payment of $323,208.51 raises the amount paid for 1951 to $2,567,011, or more than twice the amount paid during the same period of 1950. These figures not only affirm the larger numbers of subscribers now receiving benefits, but also indicate an increasing utilization and gives Blue Shield an opportunity to prove its effectiveness in providing benefits at a time they are most needed.

During the fourth non-group Blue Cross and Blue Shield campaign which was held from October 21 through November 17, approximately 15,500 inquiries were received in the Blue Cross-Blue Shield office. Inquiries came from coupons appearing in advertisements in the daily papers, from radio spot announcements and from general correspondence.

Enrollment in Minnesota Hospital Service Association as of September 30, 1951, was 1,021,938. Payment to hospitals for the month of September totalled $809,198, bringing the total amount paid for 1951 to $8,417,185.

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BOOK REVIEWS

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ALLERGY IN RELATION TO PEDIATRICS. Bret Ratner, M.D., Professor of Clinical Pediatrics (Allergy) and Associate Professor of Immunology, New York Medical College; Attending Pediatrician, Flower and Fifth Avenue Hospitals; Director of Pediatrics, Sea View Hospital. Panel discussion. An official publication of The American College of Allergists. 228 pages. Price $3.75. Saint Paul: Bruce Publishing Co., 1951.

For many years, there has been a need for a text to appear dealing specifically with allergies in children. Within recent months two such books have been published—Pediatric Allergy by R. Chobot and Allergy in Relation to Pediatrics edited by Dr. Bret Ratner.

This latter book consists of a collection of papers written by some of the outstanding pediatric allergists in this country, seventeen contributors all told. The book begins with chapters on the genesis of allergy, formation of antibodies, and the relationship of infections to allergies. Following these chapters, there is a very good discussion of the diagnostic tests and their significance. The major allergic conditions—asthma, hay fever, and eczema, as well as some of the less commonly recognized allergies—neurological, gastro-intestinal, et cetera, are then taken up and their treatment outlined. A brief chapter on emotional problems in allergic children and a chapter on the practical office management of allergies in children complete the book.

As with any book consisting of a number of conributing authors, there is bound to be some variance in the quality of the contributions. Most of the chapters in this book are very well written and represent the summation of many years of experience in handling pediatric allergic problems. Other chapters, although also representing years of experience, are not written with the same critical scientific acumen.

This book is excellent and can be highly recommended. There is still need, however, for a more comprehensive book on pediatric allergies that could be used by the pediatrician and general practitioner as a reference book.

Sheldon C. Siegel, M.D.

METHODS IN MEDICINE; THE MANUAL OF THE MEDICAL SERVICE OF GEORGE DOCK, M.D., SC.D.: A COMPREHENSIVE OUTLINE FOR CLINICAL INVESTIGATION, MANAGEMENT, AND TREATMENT OF PATIENTS WITH VARIOUS MEDICAL DISORDERS. By George R. Herrmann, M.D., Ph.D., Professor of Medicine, University of Texas Medical Branch at Galveston; Director of the Cardiovascuiar Service and Heart Station, University of Texas Hospitals; Consultant in Medicine to the Surgeon General, U. S. Army; Consultant in Vascular Diseases to the Marine Hospital, U.S.P.H.S. 488 pages. Price $7.50. 2nd ed. St. Louis: C. V. Mosby Co., 1950.

Although Dr. Herrmann modestly describes this well-written manual as a "practical ward or bedside guide," it is far more comprehensive than one would expect from that statement. Well organized, it is outstanding because it clearly describes each procedure in adequate detail, so as to obviate the necessity for referral to other textbooks and journals.

Part III, Methods of Clinical Investigation, is particularly useful since it describes for each group of disorders such as allergies, heart disease, and endocrine disorders, the special studies valuable in that field. Part IV, Therapeutic Methods, presents modern, rational procedure and is so complete that it even contains the proprietary names and descriptions of the drugs recommended and discusses their relative value. The anxious reader is never left in midair by vague statements or generalities. The author gives him exact dosages, details of administration, results to be anticipated, et cetera. This manual is definitely *not* a condensation, digest, or epitome but, rather, a complete, useful, and valuable companion most physicians will want to own.

Robert J. Brotchner, M.D.

No one can be sure when the primary tubercle is going to resolve into a harmless primary complex, though most of them do. Only time will tell whether persons with scattered, irregular, and perhaps somewhat loose calcifications will remain clinically well, though the majority of them do. A tuberculous infiltration is always of interest on the basis of health protection and is of clinical importance unless it has reached the favorable discrete character described above.—Grover C. Bellinger, M.D., *Bulletin National Tuberculosis Association*, April, 1951.

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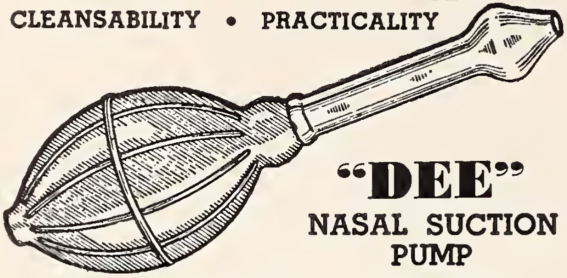

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MODIFIED AMPUTATION

(Continued from Page 1200)

cluded in the total tabulation since an estimate of healing was of course not possible.

In 65 per cent of the cases, primary or prompt healing was obtained. In only 17 per cent of the cases was revision necessary to obtain a satisfactory stump. The classification of prompt healing was applied to those cases in which there was healing of at least part of the wound by secondary intention. The term "delayed healing" was applied to those cases in which there was drainage for prolonged periods and finally healing by granulation and epithelialization but in which revision was not required to achieve a satisfactory stump.

There has been no attempt made to review the mortality figures in this presentation. It is not felt that the amputation *per se* has added significantly to mortality in these extremely ill patients. More often the amputation has been a life-saving measure. Although a few of the patients presented finally succumbed to their disease while still in the hospital following operation, a satisfactory time for the evaluation of the amputation and the resulting stump had elapsed.

Discussion

Dr. E. Evans: I haven't too much to say, but I have some material that might be of some help. Several of you men who were in the Service know the guillotine amputations were left open not because that was good operative technique, but because in the subsequent transportation of those patients wounds must be left open so that no subsequent infection can result. By leaving them open, good drainage was accomplished.

The rule in the Army was open, and guillotine procedure was done, with or without short flaps. I like this present procedure. I think it is a wonderful one.

One feature that I like is that adductor muscles are utilized in closure. They are saved. The biggest trouble in the suction socket is loose adductor muscles.

I was happy to hear the talk about the absence of a tourniquet. I hate tourniquets in amputations. In vascular cases, you are more likely to do a rapid amputation without a tourniquet. I was glad to hear, in the technique, that there is no stripping of the periosteum. All it does is traumatize. There is going to be one-fourth inch of bone absorption. I mentioned the adductor muscles. One principle used in dressing is the use of traction and sensible compression, and there is no reason today why a good amputation stump cannot be fitted with a prosthesis within five to six weeks' time, provided there is no complication.

I congratulate the author on his presentation.

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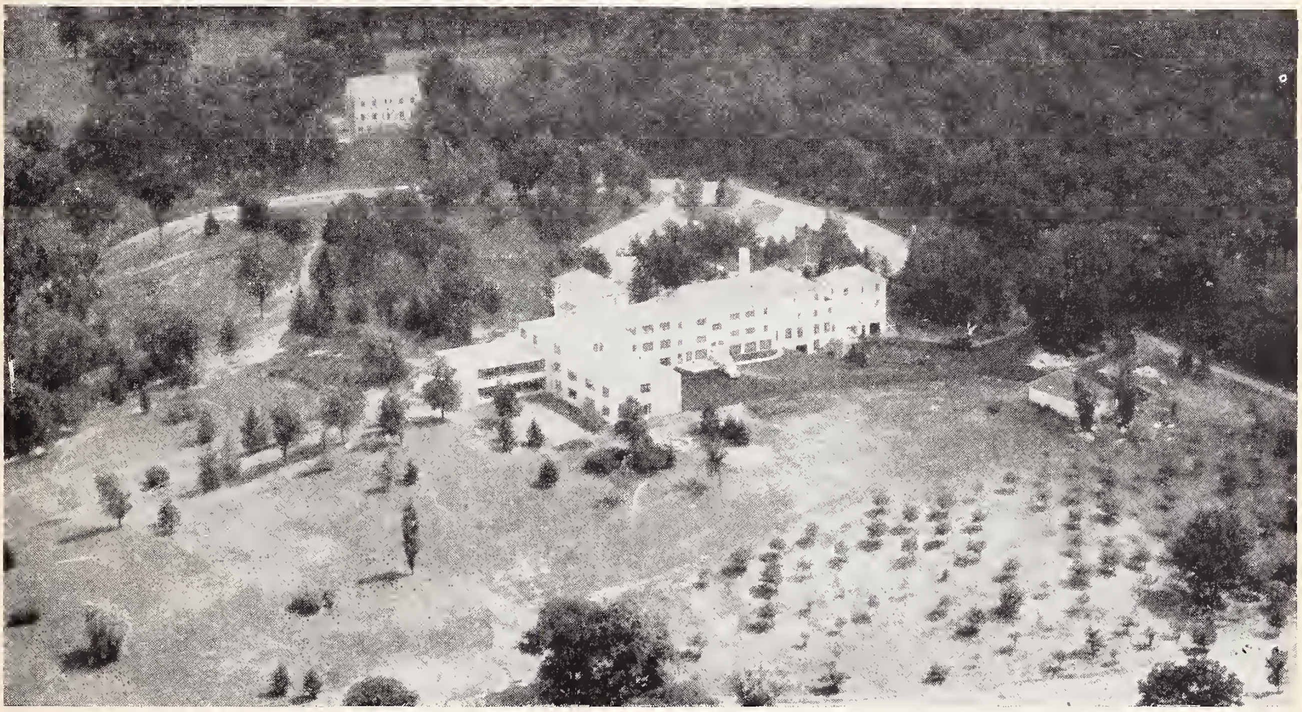

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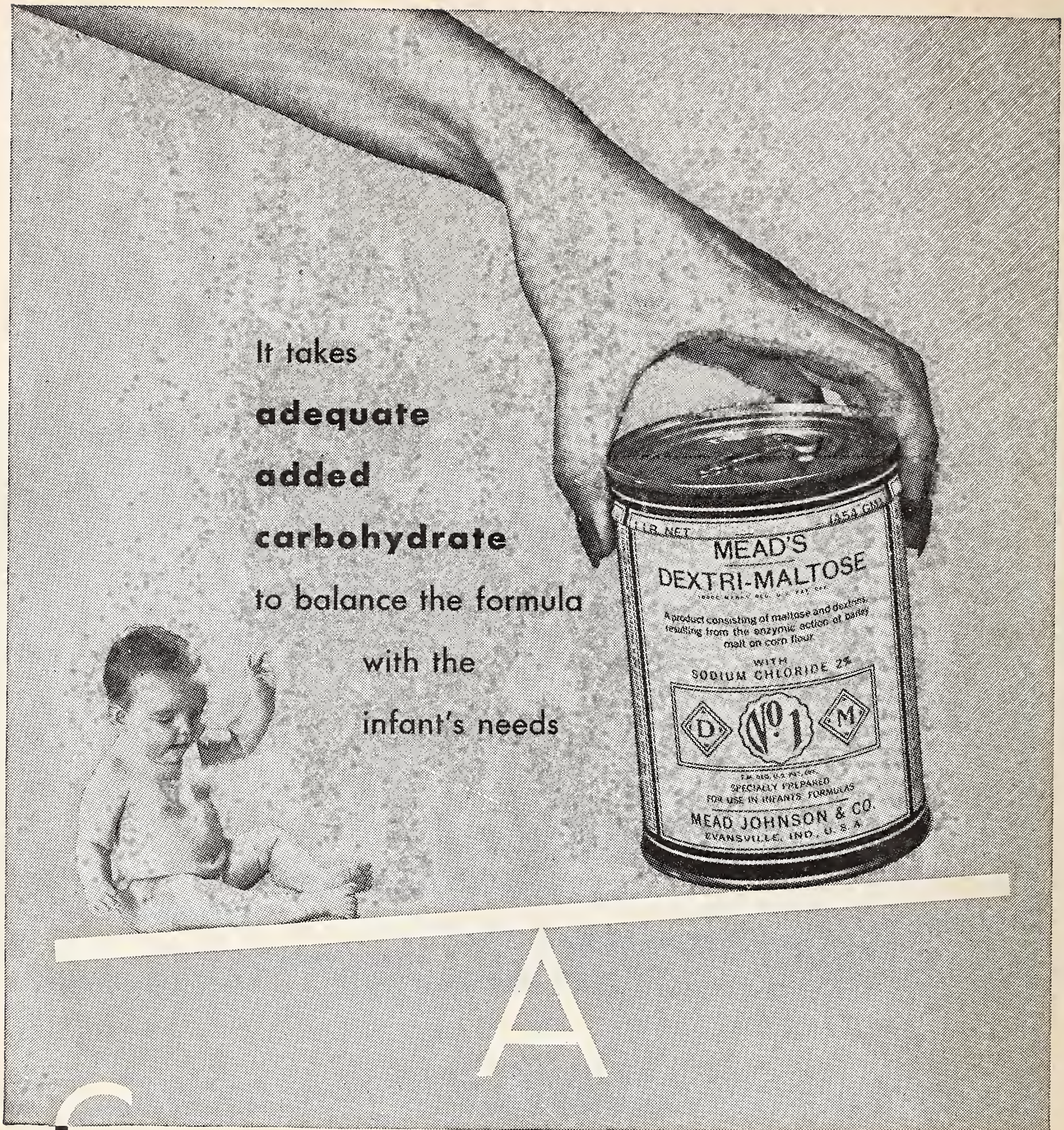
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